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1971 ANNUAL REPORT

PART I

JAMES E. "BUD" SMITH PLANT MATERIALS CENTER Knox City, Texas



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Temple, Texas

1971 ANNUAL REPORT

PART I

JAMES E. "BUD" SMITH
PLANT MATERIALS CENTER
KNOX CITY, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TEMPLE, TEXAS

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ANNUAL REPORT 1971

PART I

I. Personnel

Jacob C. Garrison	Manager
Chris L. Hacker, Jr.	Biological Technician
Frances L. Kent	Clerk-Typist

seven intermittent employees worked a total of 917 days. They were:

John L. Hendrix	Nursery worker
Richard H. Herring	Nursery worker
R. Hershel Tankersley	Nursery worker
Jerry W. Howell	Nursery worker
Joe Perry Earp	Nursery worker
Robert W. Strickland	Summer aid
Kenneth D. Woodall	Summer aid

II. Location and Principal Crops of Region

The Center is located five miles northwest of Knox City on FM-1292. It is in the Rolling Red Plains Resource land area. Crops grown in this area are cotton, grain sorghum, wheat, guar, and vegetables. There are several large ranches in a 50 mile radius.

III. Organization and Objectives

The Plant Materials Center serves the state of Texas and western one-half of Oklahoma. The major objectives of work at the Center are:

1. Assemble and evaluate plants for use in range and pasture plantings: critical areas, recreation and beautification projects, wildlife food and habitat development, and shoreline stabilization for wave action control on watershed structures.
2. A determination of cultural and management techniques required to establish and grow these plants both at the Center and in the field.
3. Make seed available for field evaluation plantings.
4. Supply proven plant materials into commercial channels so that they will become available in the field.

IV. Physical Facilities

A. Land--Sixty acres of leased land in a nearly level tract is 2200 feet long, north and south, and 1200 feet wide, east and west. It has been divided into 12 fields of 5 acres each. A new lease was acquired in November of 1970. It consists of approximately 10 acres joining the original 60 acre tract on the southwest corner and measuring 490 feet wide east and west, and 935 feet long, north and south. It will be divided into 2 four acre fields and one 2 acre field with roads corresponding with present existing Center roads.

B. Soil--Approximately 90 percent of the soil is a friable loam or fine sandy loam surface soil varying in depth from 10 to 30 inches over a sandy clay loam or clay subsoil. Remainder of the soil is slightly heavier, having a fine sandy loam surface soil over a clay loam sub-soil with a caliche layer between 20 and 36 inches.

C. Erosion Problems--Water erosion is not a problem but wind erosion poses a constant threat during the spring and late fall months. Cover crops or tillage practices must be employed to control wind erosion on the open fields not planted to grass.

D. Irrigation--Slopes in all fields average less than one percent. Irrigation water is applied by gravity flow. The irrigation water is pumped from five shallow wells by electrically driven turbine pumps. Three of the wells, capable of producing a total of approximately 400 g.p.m. are connected underground plastic pipeline. Five risers are conveniently located for gated pipe distribution. Two of the wells, capable of producing 200 g.p.m. can be hooked into the system or used on the newly acquired 10 acre lease. A sprinkler system was obtained from surplus in 1967 and used to irrigate selected fields.

Between 20 and 24 inches of irrigation water were applied to initial increase and production fields in 1971.

E. Building--A 40' x 80' steel building is supplied as a part of the lease. This building provides space for the seed cleaning equipment; shop area; seed storage and 10' x 20' office in the northeast corner.

In addition, the Soil Conservation Service constructed a temporary 20' x 45' open-front machine shelter in 1967. In 1970 another 20' x 75' open-front machine shelter was constructed for sheltering the farming equipment.

V. Climatic Summary

The winter of 1970-71 was dry. The lowest temperature recorded was 4 degrees on January 5. On February 8 a low of 6 degrees was recorded. The longest continuous cold spell occurred between December 31 and January 8. Night time low temperatures below 20 degrees were recorded 9 times during the winter. The temperature failed to rise above 40 degrees during the day only 3 times during the winter. The lowest daytime reading was 21 degrees on February 7.

Climatic Summary, cont'd

A high temperature of 103 degrees was recorded on July 5, 1971. Temperatures rose to 100 degrees 20 days during the summer with the longest consecutive period being for 4 days, July 4-7. This compares to 20 days of 100 degree weather in 1970 with the longest consecutive period being 6 days from July 6-11, 1970.

A trace of moisture was recorded in January. Only .31 inches of rainfall was recorded during February and March. The 25 year average for this period is 2.19 inches. April, May and June brought 8.67 inches of rain. The 25 year average for the April, May and June rainfall is 8.71 inches. There were 1.84 inches in July, 5.58 inches in August and 3.91 inches in September. This brought the total rainfall to 20.31 inches or 2.96 inches above normal. October, November and December brought 8.64 inches for an annual 1971 rainfall of 28.95 inches compared with 22.05 inches for the 25 year average rainfall for this area.

Eighty-five percent of moisture occurred during the growing season. This compares to 67 percent during the 69-70 growing season and 64 percent for the 25 year average. A monthly rainfall summary for the year follows:

Jan.	0.00	May	6.10	Sept.	3.91
Feb.	0.31	June	1.25	Oct.	6.08
March	0.00	July	1.84	Nov.	0.62
April	1.32	Aug.	5.58	Dec.	1.94

Freeze Data 1971

Mean date of last spring occurrence - 20 March
Mean date of first fall occurrence - November 7
Number of days between dates - 210

Assembly of Plant Materials

A total of 294 new accessions of plants were planted in the initial observational area in 1971. These were received from field collections in Texas and Oklahoma from SCS Plant Materials Centers, State and Federal agencies. Most of the accessions were received as seed except for watershed studies where 14 items were transplanted vegetatively.

<u>Grasses</u>	<u>Number</u>	<u>Purpose</u>
Andropogon - bluestem	161	XV, V
Arundinaria - switchcane	1	XVIII, XIX
Arundo - giant cane	1	XVIII, XIV
Bothriochloa - bluestem	1	XV, V
Bouteloua - sideoats grama	4	XV
Cynodon - bermuda grass	2	V, XIV
Dichanthium - old world bluestem	4	XV, V
Eragrostis - lovegrass	8	I, IV, XIII, XV
Euchlaena - teosente	1	V
Heteropogon - tanglehead	1	XV
Panicum - maidencane	2	XVIII
Paspalum-paspalum	1	V, XVII
Phragmites-reedgrass	4	XIX, XVIII
Phyllostachys - bamboo	1	XVIII, XIX
Spartina-cordgrass	12	XVII, XVIII, XIX
Tricholaena - natalgrass	1	XVI
Tridens - tridens	1	XV

<u>Legumes & Forbs</u>	<u>Number</u>	<u>Purpose</u>
Acacia - acacia	2	XII, XVI
Centrosema-butterfly pea	1	XVI, XII
Chamaecrista-partridgepea	2	XVII, XII
Clitoria-pigeonwing	4	XVI, XVII
Dalea-dalea	1	XII, XVII
Desmanthus-bundleflower	16	XII, XVI, XVII
Desmodium-tickclover	14	XVII
Galactia-milkpea	4	XII, XVII
Gilia-Texas plume	1	XVI
Helianthus-sunflower	2	XII, XVI, XVII
Indigofera-indigo	15	XII, XVII
Lespedeza-bushclover	19	V, XIX, XVII
Liatris - gayfeather	9	XII, XVI
Linum-flax	1	XII, XVI
Neptunia-neptunia	14	VI, XII, XVI
Onobrychis-sanfoin	1	XIV
Petalostemon-prairieclover	10	XII, XVI, XVII
Phlox-phlox	1	XVI
Rhynchosia-snoutbean	20	XII, XVII
Schrankia-sensitivebrier	6	XII, XVII
Simsia-bushsunflower	1	XII, XVII

<u>Legumes & Forbs, cont'd</u>	<u>Number</u>	<u>Purpose</u>
Strophostyles - fuzzybean	1	XII, XVII
Tephrosia-tephrosia	3	XII, XVI, XVII
Viguiera-goldeneye	1	IV, XVII, XII
Zexmenia-zexmenia	3	XII, XVI

<u>Woody Plants</u>	<u>Number</u>	<u>Purpose</u>
Alnus-alder	1	XVIII
Amorpha-amorpha	10	XVIII, XIX
Callicarpa-beautyberry	1	XVI, XVII
Castanopsis-chiniquepin	1	XVI, XVII
Ceanothus-buckbrush	4	XVII
Cephalanthus-buttonbush	2	XVIII
Citharexylum-fiddlewood	1	XVII, XVI
Euonymus-winterberry	2	XVI, XVII
Eysenhardtia-kidneywood	2	XVII, IV
Juniperus-juniper	2	XVI, XVII
Lithocarpus-tanoak	1	XVI, XVII
Lycium-matrimonyvine	1	XVI, XVII, XIX
Malus-crabapple	1	XVI, XVII
Pittosporum-pittosporum	1	XVI, XVII, XIX
Raphiolepis-hawthorn	1	XVI, XVII
Rhus-sumac	1	XVI, XVII
Robina-locust	1	XVI, XIX
Salix-willow	2	XVIII, XIX
Symphocarpus-snowberry	1	XVI, XVII

INITIAL EVALUATIONS

A total of 922 new and previously grown accessions were growing at the J. E. "Bud" Smith Plant Materials Center in 1971. Nine assemblies containing 176 accessions were published in Part II of the 1971 Annual Report. A listing of the accession numbers and origin follows. The results of the evaluation is also included:

- I. Bouteloua gracilis bluegrama planted May 2, 1967 with 15 accessions from North Texas and PMT-1221 bluegrama, a composite of materials from Oklahoma.

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
697	Aspermont, Texas	1664	Stamford, Texas
1659	Henrietta, Texas	1221	Composite
1660	Mineral Wells, Texas	1665	Seymour, Texas
1661	Haskell, Texas	1666	Vernon, Texas
1214	Knox City, Texas	99	'Marfa'
1662	Matador, Texas	1810	'Lovington'
1663	Sweetwater, Texas	1807	'Commercial' Common
1215	Archer City, Texas	697	Aspermont, Texas

Initial Evaluations, cont'd

RESULTS

PMT-1221 -

Composite of materials from Lawton, Waurika, Duncan and Walters, Oklahoma was used as a standard for comparison. It rated first in forage yield and 3rd. in seedling vigor, stand, leaf production and seed production.

PMT-697 - Aspermont, Texas

Rated first in stand, seedling vigor, leaf production and seed production. It rated 0.95 times the yield obtained from PMT-1221.

PMT-1659 - Henrietta, Texas

Rated 3rd. in seedling vigor, stand, leaf production and seed production. The average forage yield was 0.95 that of PMT-1221, equal to PMT-697 from Aspermont, Texas.

PMT-1666 - Vernon, Texas

Rated 3rd. in stand, seedling vigor, leaf production and seed production. Forage yield was only 0.82 that of PMT-1221 or number 5 in rank. It also had an early maturity date compared to PMT-1221.

II. Bouteloua gracilis bluegrama assembled from Oklahoma. A listing and results follow. These were planted May 3, 1968.

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
697	Aspermont, Texas	1218	Walters, Oklahoma
1214	Knox City, Texas	1219	Waurika, Oklahoma
1215	Archer City, Texas	1220	Waurika, Oklahoma
1216	Duncan, Oklahoma	1221	Composite
1217	Lawton, Oklahoma		

RESULTS

PMT-697 - Aspermont, Texas

Rated first in stand, seedling vigor, leaf production, and seed production. It also rated first in forage yield, 1.04 times that of PMT-1221 a composite from Oklahoma used as a standard.

PMT-1221 -

Composite of materials from Lawton, Waurika, Walters and Duncan, Oklahoma rated second in stand, seedling vigor, leaf production and seed production. It also rated second in forage yield and was used as a standard for comparison.

Initial Evaluations, cont'd

- III. *Andropogon gerardi* big bluestem - Thirteen accessions of big bluestem were planted May 2, 1967. A listing of PMT numbers, origin and results follow:

<u>PMT</u>	<u>ORIGIN</u>	<u>PMT</u>	<u>ORIGIN</u>
1223	'Champ'	1424	'Pawnee'
1243	Whitesboro, Texas	1429	Gatesville, Texas
1244	Decatur, Texas	1430	Temple, Texas
1245	Denton, Texas	1431	Temple, Texas
1246	Gainesville, Texas	667	Clarksville, Texas
1247	New Boston, Texas	671	Oenaville, Georgia
1248	Sulphur Springs, Texas	1141	Franklin Co., Ark.
1249	Bryan, Texas	1479	'Kaw'

RESULTS

PMT-1141 - Franklin County, Arkansas

Had the top performance both in forage yield and ocular evaluations of stand, vigor, leaf production and seed production.

PMT-1245 - Denton, Texas

Rated second in ocular evaluations and third in forage yield.

PMT-1423 - 'Champ'

Rated forth in forage production and first in ocular evaluations due to being a poor seed producer.



Te-13136-16 - A new assembly of big bluestems containing 111 accessions collected from a 5 state area and planted at Knox City PMC in the spring of 1971. The planting was duplicated at the Manhattan, Kansas PMC. Performance notes from the two locations are programmed for ADP entries.

Initial Evaluations, cont'd

- IV. Sporobolus airoides alkali sacaton - Fifteen accessions were planted May 3, 1968. Tables below show PMT numbers, origin and results of the study.

<u>PMT</u>	<u>ORIGIN</u>	<u>PMT</u>	<u>ORIGIN</u>
155	Dell City, Texas	1733	Sayre, Oklahoma
207	Lubbock, Texas	1734	Harper Co., Oklahoma
228	Dalhart, Texas	1735	Comanche Co., Oklahoma
382	Pecos, Texas	1736	Woodward, Oklahoma
326	Kenedy Co., Texas	1737	Harper Co., Oklahoma
811	Lubbock, Texas	1738	Blaine Co., Oklahoma
1731	Jackson Co., Okla.	1739	Harper Co., Oklahoma
1732	Jackson Co., Okla.		

RESULTS

PMT-326 - Kenedy Co., Texas

Rated first in seedling vigor, stand, leaf production, and formation of seed heads although it has a hard time trying to make seed at Knox City. It is cut off by frost on normal years. Forage yield was 2.00 times that of PMT-1733 used as a standard for comparison. PMT-326 holds some green in the winter months.

PMT-155 - Dell City, Texas

Rated 2nd. in the group for seedling vigor, stand, leaf production and seed production. Forage yield was 1.05 times that of PMT-1733 used as a standard for comparison.

PMT-1733 - Sayre, Oklahoma

Rated third in stand, seedling vigor, leaf production and seed production. Forage yield rated as 1.00 and it was used as the standard for comparison.

PMT-811 - Lubbock, Texas

Rated high in forage production, 1.55 times that of PMT-1733 but it rated 10th in seedling vigor, leaf production and seed production.

Initial Evaluations, cont'd

- V. Calamovilfa gigantea big sandreed grass - Six accessions of big sandreed grass were planted May 3, 1968. The following chart shows the PMT numbers, origin and results:

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
1667	Freedom, Oklahoma	1670	Cherokee, Oklahoma	1668	Freedom, Oklahoma
1671	Texas Co., Okla.	1669	Beaver, Oklahoma	704	Canadian, Texas

RESULTS

PMT-1671 - Texas Co., Oklahoma

Ratings were based on rate of spread and dry forage yield. PMT-1671 rated high in seed production compared to the other five accessions; however, it is still a poor seeder due to sparse culms.

PMT-704 - Canadian, Texas

PMT-704 rated number 2 in performance. It was transplanted to the rod row area vegetatively and was not evaluated in 1968 and 1969.

Evaluations taken in 1970 and 1971 were accumulated and average points per year were used in the final analysis.

- VI. Sorghastrum nutans indiangrass - Twenty-nine field collections and commercial strains of indiangrass were assembled and planted May 3, 1968. The following tables shows the PMT numbers, origin and results follows:

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
875	'Cheyenne'	1721	Atoka, Okla.	1727	Pontotoc, Okla.
1713	Durant, Okla.	809	'Renner'	1728	Bryan Co., Okla.
1714	Waurika, Okla.	1144	'Illano'	1729	Ardmore, Okla.
1715	McAlister, Okla.	1801	'Osage'	1730	Step hens Co., Okla.
1716	McAlister, Okla.	802	Lampassas, Texas	1734	Waurika, Okla.
1717	Hughes Co., Okla.	1722	Eldorado, Kan.	1735	San Antonio, Tex.
1718	Ardmore, Okla.	1723	Waurika, Okla.	1463	KSU #1
1719	Grady Co., Okla.	1724	Stephen Co., Okla.	1464	KSU #2
1071	OSU	1725	Atoka, Okla.	1465	KSU #3
1720	Hughes Co., Okla.	1726	Grady Co., Okla.		

RESULTS

PMT-802 - Lampassas, Texas

Rated first in stand, seedling vigor, leaf production and seed production. Forage yield was 1.90 times that of 'Cheyenne' indiangrass used as a standard for comparison. PMT-802 is about 1 month later than 'Cheyenne' indiangrass for maturity.

PMT-1071 - OSU

Rated 2nd. in stand, seedling vigor, leaf production, and seed production. It ranked 7th. in forage yield. The 3 year average was 1.19 times that of 'Cheyenne'. The maturity date is the same as 'Cheyenne'.

PMT-1723 - Waurika, Oklahoma

Rated 3rd. in stand, seedling vigor, leaf production and seed production. It rated 3rd. in forage yield with 1.60 times that of 'Cheyenne' indiangrass. Maturity was about the same as 'Cheyenne'.

Initial Evaluations, cont'd

Sorghastrum nutans-results-cont'd.

PMT-1463 -

KSU#1 rated 2nd. in forage yield with 1.70 times that of 'Cheyenne'. The maturity date was the same as 'Cheyenne'. PMT-1463 rated 9th. for seedling vigor, stand, leaf production and seed production.

VII. Tripsacum dactyloides eastern gamagrass - Fifty-one accessions were assembled and planted on March 6, 1968. A listing of PMT numbers, origin and results follows:

<u>PMT</u>	<u>ORIGIN</u>	<u>PMT</u>	<u>ORIGIN</u>	<u>PMT</u>	<u>ORIGIN</u>
823	Clarksville, Tex.	1592	Ardmore, Okla.	1613	Ada, Okla.
824	Clarksville, Tex.	1593	Ada, Okla.	1614	Rush Springs, Okla.
825	Sulphur Springs, Tex.	1594	Woodward, Okla.	1615	Noble Co., Okla.
826	Crosbyton, Tex.	1598	Bryan Co., Okla.	1616	Noble Co., Okla.
827	Lufkin, Tex.	1599	Bryan Co., Okla.	1617	Grant Co., Okla.
828	Groesbeck, Tex.	1600	Pawhuska, Okla.	1618	Wagoner Co., Okla.
829	Rosenberg, Tex.	1602	Blaine Co., Okla.	1619	Wagoner Co., Okla.
830	Liberty, Tex.	1603	Oklmulgee, Okla.	1620	Wagoner Co., Okla.
831	Waxahatchie, Tex.	1604	Oklmulgee, Okla.	1621	Talihina, Okla.
832	San Marcos, Tex.	1605	Oklmulgee, Okla.	1622	Talihina, Okla.
833	Waco, Tex.	1606	Mayes Co., Okla.	1623	Texas Co., Okla.
1213	Ga. PMC	1607	Mayes Co., Okla.	1624	Texas Co., Okla.
1466	Kan. PMC	1608	Mayes Co., Okla.	1625	Miami, Okla.
1588	Nowata, Okla.	1609	Chandler, Okla.	1626	Miami, Okla.
1589	Nowata, Okla.	1610	Chandler, Okla.	1627	Lefflore Co., Okla.
1590	Nowata, Okla.	1611	Chandler, Okla.	1805	Miss. PMC
1591	Ardmore, Okla.	1612	Ada, Okla.	1806	Miss. PMC

RESULTS

Performance notes on stand, vigor, leaf production and seed production were obtained from 1968-1971. Ratings were made using a numbering system with 1 best and 9 very weak. Summaries were obtained by adding the total points and dividing by the number of years observed. Low numbers indicated superior accessions. Numbers were then ranked with number one in rank being the superior accession and allows the assembly to be ranked from 1-9 with several accessions having the same rank.

Clipping studies were done by clipping 2.9 feet of row and recording the dry weight in grams at the end of the growing season. PMT-1213 was used as the standard for comparison and rated as 1.00 on forage. The dry weight in grams clipped were totaled for 1969-1971 and recorded as a percent based on the yield obtained from PMT-1213. Yields were then ranked with 1 as the most yield and 29 as the least yield in forage weight.

A combination of forage yield and performance note ratings revealed the following:

PMT-832	San Marcos, Texas	Ranked 1
PMT-829	Rosenberg, Texas	Ranked 2
PMT-1609	Chandler, Oklahoma	Ranked 3
PMT-1618	Bryan Co., Oklahoma	Ranked 3
PMT-1599	Bryan Co., Oklahoma	Ranked 4
PMT-1612	Ada, Oklahoma	Ranked 5
PMT-1591	Ardmore, Oklahoma	Ranked 6
PMT-1607	Mayes Co., Oklahoma	Ranked 6
PMT-1615	Noble Co., Oklahoma	Ranked 7
PMT-1617	Grant Co., Oklahoma	Ranked 8

Initial Evaluations, cont'd

VIII. Andropogon scoparius little bluestem - Two assemblies of little bluestems were planted in 1967 and 1968. The PMT numbers, origin and results follow. Twenty-two accessions were planted May 5, 1967.

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
592	'Pastura'	1236	Mertzon, Tex.	591	Henrietta, Tex.
687	Marlin, Tex.	1237	San Antonio, Tex.	592	'Pastura'
688	Waco, Tex.	1238	Waurika, Tex.	1432	Gatesville, Tex.
689	'Aldous'	1239	Nacogdoches, Tex.	1433	Gatesville, Tex.
1232	Bryan, Texas	1240	Bay City, Tex.	1434	Temple, Texas
1233	Bryan, Texas	1331	Coffeerville, Miss.	1435	Temple, Texas
1234	Whitesboro, Tex.	1332	Coffeerville, Miss.	1460	'Western'
1235	Clarksville, Tex.				

RESULTS

PMT-591 - Henrietta, Texas

Rated highest in seedling vigor, stand, seed production, leaf production but only clipped 1.2 percent of PMT-592 'Pastura' little bluestem. Had a bad rust problem in one row and matures early.

PMT-1236 - Mertzon, Texas

Rated second best in stand, leaf production, seed production and seedling vigor. It produced 1.52 times more forage over the 3 year trial than PMT-592 'Pastura' little bluestem.

PMT-1460 -

Western little bluestem rated 3rd on stand, seedling vigor, seed production, and leaf production. Yield was equal to 'Pastura' little bluestem.



Te-10963-7 - Initial observation planting of little bluestems.
Front of pictures is the 1967 plantings and the
1968 plantings are in the background.

Initial Evaluations, cont'd

IX. Andropogon scoparius little bluestem - The second assembly was planted May 3, 1968. The PMT numbers, origin and results follows:

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
592	'Pastura'	1644	Duncan, Oklahoma
1634	Ada, Oklahoma	1645	Duncan, Oklahoma
1635	Durant, Okla.	1646	Ardmore, Oklahoma
1636	Ardmore, Okla.	1649	Atoka, Oklahoma
1637	Mangum, Okla.	1650	Atoka, Oklahoma
689	'Aldous'	1651	Waurika, Oklahoma
1638	Hinton, Okla.	1652	Waurika, Oklahoma
1460	'Western'	1653	McAlister, Oklahoma
1640	Holdenville, Okla.	1654	Hinton, Oklahoma
1641	Rush Springs, Okla.	1655	Durant, Oklahoma
1642	Rush Springs, Okla.	1656	Sentinel, Oklahoma
1643	Holdenville, Okla.	1657	Ada, Oklahoma

RESULTS

PMT-1641 - Rush Springs, Oklahoma

It had good seedling vigor, good stand and rated high in seed production. Forage yield was 2.26 compared with 'Pastura' little bluestem for the 1969, 1970, and 1971 dry weight yield.

PMT-1656 - Sentinel, Oklahoma

Rated high in seedling vigor and forage yield but only rated average on seed production. Forage yield was 2.11 times that of 'Pastura' for the 3 year average.

PMT-1652 - Waurika, Oklahoma

Has good seedling vigor and better than average seed production. Forage yield was 1.94 percent that of 'pastura' little bluestem.

WATERSHED STUDIES

The Center continued to study plants with potential use on front slopes of watershed structures for erosion control caused by wave action.

There were sixty-five accessions evaluated during the 1971 growing season.

Amorpha fruticosa-12 accessions of indigo bush amorpha were grown from seed on the Center. There were 7635 plants produced at the Center for field use.

Phragmites communis-five accessions of common reedgrass were evaluated for rhizome development during 1971. Two accessions, PMT-2376 from Lawrence, Texas and PMT-2380 from Anahuac, Texas were increased for rhizome production and sent to the field during the dormant period. A total of 14,500 rhizomes were sent to the field. Rhizomes are cut into five joint segments for field use.

Salix interior-three accessions of sandbar willow were increased by whips for field use. They were PMT-2372 from Mass. PMC, PMT-2392 from Knox City, Texas and PMT-2437 from Hugo, Oklahoma. The Mississippi accession was badly effected by root rot. Only 250 plants were dug out of 2500 possible plants. Approximately 20 percent of the Knox City accession was effected. There were 2000 plants used in the field and interplanted with common reedgrass.

Other plants being considered for use on watershed structures are prairie cordgrass, buttonbush, swamp privet, elbow bush, maiden cane and giant cane.



Te-12309-13 - Watershed plants being studied at the Center for use on watershed structures. Right, maidencane, prairie cordgrass, shoredune panicum and giant cane in background.

ADVANCED EVALUATIONS

1. *Panicum virgatum* - Nineteen accessions of switchgrass are being evaluated for forage seed and rhizome production. Dr. Holt, Texas A & M took several of these accessions to College Station for intensive phenological studies. A report on results will be published at a later date.

2. *Andropogon*, *Bothrichloa* and *Dichanthium* spp. - Six accessions of introduced bluestem are being evaluated for forage production, seed production, winter hardiness and resistance to disease. Results will be tabulated and published in 1972.

3. *Sorghastrum nutans* - Seventeen accessions of indiangrass are being evaluated for forage and seed production and late maturity. All seventeen accessions are of southern origin and performance notes in the initial evaluation area showed them to be about one month later in seed maturity than 'Cheyenne' indiangrass. A report will be published at a later date.

4. *Bouteloua curtipendula* - Twenty-two accessions of sideoats grama are being evaluated for seed production, forage production and ability to spread by rhizomes. Performance notes from the initial evaluation area indicate that there may be a strong correlation between rhizome development and seed production. The bunch types are normally heavy seed producers, while the rhizomatous types are poor seed producers. Results will be tabulated at the conclusion of the study.



Te-12459-15 - Forage yield studies; a 2.9 foot segment of row is clipped. Green and dry weight is recorded in grams.

Advanced Evaluations, cont'd

5. *Panicum coloratum* - Two accessions of kleingrass are being compared for forage production and seed retention. Selection 75 kleingrass is being compared with PMT-969 from South Africa. Results will be published at the conclusion of the study.

6. *Eragrostis trichoides* - Two accessions 'Common' sand lovegrass is being compared with 'Mason' sandhill lovegrass for forage production, seed production, spring emergence and fall dormancy.

'Mason' sandhill lovegrass was released to the commercial market during the winter 1971. It was released jointly by the Soil Conservation Service and Texas A & M University. Results of trials will be published at a later date.

'Common' sand lovegrass is harvested from native stands in Oklahoma and Kansas and is commercially available on the market. There will be limited quantities of 'Mason' sandhill lovegrass on the market in the fall of 1972.



Te-13136-7 'Mason' sandhill lovegrass with 7 inches of new growth 3-13-71.

Advanced Evaluations, cont'd

7. *Agropyron smithii* - Thirty-seven accessions were assembled and planted on September 28, 1967. The PMT numbers, origin and results follow:

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
214	Wellington, Texas	910	Albany, Texas	924	Gray Co., Texas
232	Dalhart, Texas	911	Albany, Texas	925	Gray Co., Texas
660	'Commercial'	912	Albany, Texas	937	Baird, Texas
661	'Commercial'	914	Mineral Wells, Texas	938	Baird, Texas
662	Tahoka, Texas	915	Coleman, Texas	1000	Crowell, Texas
901	Knox City, Texas	916	Baird, Texas	1001	Henrietta, Texas
902	Knox City, Texas	917	Junction, Texas	1002	Crosbyton, Texas
904	Memphis, Texas	918	Fountain, Colo.	1003	Anson, Texas
905	Floydada, Texas	919	New Mexico PMC	1004	Albany, Texas
906	Throckmorton, Texas	921	Moore Co., Texas	1005	Breckenridge, Tex.
907	Throckmorton, Texas	922	Moore Co., Texas	1006	Breckenridge, Tex.
909	Stamford, Texas	923	Moore Co., Texas	1057	Pilot Point, Tex.

RESULTS

The final rank, 1-10, are listed below:

1 - PMT-1005	Breckenridge, Texas	6 - PMT-1003	Anson, Texas
2 - PMT-910	Albany, Texas	7 - PMT-912	Albany, Texas
3 - PMT-104	Memphis, Texas	8 - PMT-907	Throckmorton, Tex.
4 - PMT-662	Tahoka, Texas	9 - PMT-902	Knox City, Tex.
5 - PMT-905	Floydada, Texas	10 - PMT-937	Baird, Texas
5 - PMT-1057	Pilot Point, Texas		

PMT-1005 - Breckenridge, Texas

PMT-1005 western wheatgrass from Breckenridge, Texas gave the best overall performance during the four year study. This was determined by ocular estimate, square foot rhizome count, and rhizome count along a 48" straight edge.

PMT-902, 904, 907, 910, 912, and 937

These would not be considered for plant increase because the original row died out during the second year of study. All data collected after the first year was from new rhizome development.

PMT-662 - Tahoka, Texas

PMT-662 from Tahoka, Texas would be second choice. It exhibited fair to good seed production and good rhizome development and rust resistance. It was increased to a one-acre seed production block in the fall of 1968.

PMT-905 - Floydada, Texas

PMT-905 from Floydada, Texas is third choice. Rhizome development was a little better than PMT-662 but is not as resistant to rust. Seed production is consistently lower than PMT-662. PMT-905 was increased to a .95 acre seed production block in the fall of 1968.

PMT-1057 - Pilot Point, Texas

PMT-1057 western wheatgrass from Pilot Point, Texas was a superior strain. It had good rhizome production and excellent seed production and was fairly resistant to rust. Seed crops were effected by ergot.

SEED PRODUCTION FIELDS, 1971

PMT	SCIENTIFIC NAME	COMMON NAME	ORIGIN	PMC	ACRE	1971 PRODUCTION	PROBLEM AREA
662	Agropyron smithii	western wheatgrass	Tahoka	H	1.00	36	II, X, IV
905	Agropyron smithii	western wheatgrass	Floydada	I	.95	19	II, X, IV
333	Andropogon barbinoides	cane bluestem	Van Horn	H	.40	125	VIII
588	Andropogon caucasicus	caucasian bluestem	Commercial	A-66	1.00	87	V, XIX
588	Andropogon caucasicus	caucasian bluestem	Commercial	A-71	1.00	155	V, XIX
588	Andropogon caucasicus	caucasian bluestem	Commercial	F-71	1.5	177	V, XIX
1482	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	35	III
1482A	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	19	III
1482B	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	16	III
1482C	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	3½	III
1041	Atriplex canescens	fourwing saltbush	Knox City, Texas	C	.10	4½	IV, VII, XVII
201	Bouteloua curtipendula	sideoats grama	Throckmorton, Texas	L	.75	210	XV
328	Bouteloua curtipendula	sideoats grama	Van Horn, Texas	I	1.00	585	II, XV
470	Bouteloua curtipendula	sideoats grama	Haskell, Texas	L	.75	210	XV
697	Bouteloua curtipendula	sideoats grama	Aspermont, Texas	I	1.00	130	XV
1221	Bouteloua gracilis	bluegrama	Waurika, Okla.	H	1.00	98	XV
1181	Buchloe dactyloides	buffalograss	ARS, Okla.	C	1.00	950	XVI, XIX
711	Chloris cuculata	hooded windmillgrass	Mason, Texas	J	.10	21	XI
2408	Desmanthus (depressus) virgatus	bundleflower	Victoria, Texas	G-2	.05	27	XII
587	Dicanthium sp.	old world bluestem	Near East	A	.55	100	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	F	.50	13	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	E-66	1.00	117	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	E-71	1.00	33	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	J-70	1.00	168	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	J-71	.50	23	VI, V, XIX
1198	Elymus sabulosus	wild rye	USSR	G	.05	19	XIX
874	Engelmannia pinnatifida	engelmannidaisy	Eldorado, Texas	F	.55	110	XII, XVI, XVII
718	Eragrostis curvula	weeping lovegrass	South Africa	I-K	1.00	22	V
729	Eragrostis curvula	weeping lovegrass	South Africa	I	.95	110	V
732	Eragrostis lehmanniana	lehmann lovegrass	South Africa	H	.50	21	IV

SEED PRODUCTION FIELDS, 1971, cont'd

PMT	SCIENTIFIC NAME	COMMON NAME	ORIGIN	PMC	ACRE	1971 PRODUCTION	PROBLEM AREA
732	Eragrostis lehmanniana	lehmann lovegrass	South Africa	F	.50	116	IV
2121	Eragrostis superba	Wilman lovegrass	South Africa	L	.30	100	V
338	Eragrostis trichoides	sand lovegrass	Mason, Texas	K	1.00	227 F	XV
1564	Helianthus maximiliani	maximilian sunflower	Texas Composite	F	.30	28	XII, XVI, XVII
1051	Indigofera leptosepala	western indigo	Knox City, Texas	G-2	.30	50	XII, XVII
862	Mendora longiflora	showy mendora	Brackettville, Texas	G	.55	16	XII
10F	Panicum coloratum	Sel. 75 kleingrass (foundation)	South Africa	H	.80	19FEP	V
1480	Panicum havardi	havard panicum	Monahans, Texas	C	.10	9	XI
2245	Panicum havardi	havard panicum	Monahans, Texas	G	.05	9	XI
279	Panicum virgatum	switchgrass	Sutherland Springs	J-68	plt.50	111	V, VI, XVII, XV, XVIII, XIX
279	Panicum virgatum	switchgrass	Sutherland Springs	J-70	plt.50	70	V, VI, XVII, XV, XVIII, XIX
785	Panicum virgatum	switchgrass	Hallettsville, Tex.	K	1.00	285	V, VI, XVII, XV, XVIII, XIX
788	Panicum virgatum	switchgrass	George West, Texas	L	.55	156	V, VI, XVII, XV, XVIII, XIX
331	Pennisetum ciliare (TAM)	buffelgrass	Texas A & M	H	.10	5	V
1881	Rhynchosia minima	least snoutbean	Victoria, Texas	C	.075	55	XII
856	Simsia sp.	bushsunflower	Junction, Texas	G	.55	108	XII, XVII
802	Sorghastrum nutans	indiangrass	Lampasas, Texas	K	.75	250	XV, V
335	Sorghastrum nutans	indiangrass	Hamilton, Texas	L	.20	108	XV, V
326	Sporobolus airoides	alkali sacaton	Kenedy Co.	I	.20	6	VII, XV, XIII
1733	Sporobolus airoides	alkali sacaton	Sayre	J	.40	117	VII, XV, XIII
1422	Sporobolus fimbriatus	dropseed	So. Africa	J	.05	13	V
820	Sporobolus wrightii	big sacaton	Falfurrias, Texas	L	.50	78	VII
1879	Strophostyles helvola	trailing wildbean	Victoria, Texas	F	.10	97	XII
2637	Tricholaena rosa	natalgrass	Pearsall, Texas	E	.10	57	XVI
389	Trichachne californica	Arizona cottontop	Van Horn, Texas	H	.55	210	IX, VI, XV
12	Trichloris crinita	twoflower trichloris	Brackettville, Tex.	L	.30	33	VI, VII
355	Trichloris pluraflora	fourflower trichloris	Raymondville, Tex.	K	.20	42	XV

RHIZOME AND PLANT PRODUCTION - 1971

<u>PMT</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>PMC</u>	<u>NUMBER</u>	<u>PROBLEM AREA</u>
2297	Amorpha fruticosa	indigobush	Gainesville, Texas	B	2300 plants	XVIII
2298	Amorpha fruticosa	indigobush	Stanton, Nebraska	B	400 plants	XVIII
2299	Amorpha fruticosa	indigobush	Talihina, Oklahoma	B	915 plants	XVIII
2468	Amorpha fruticosa	indigobush	Bowie, Texas	B	2970 plants	XVIII
2469	Amorpha fruticosa	indigobush	Knox City, Texas	B	50 plants	XVIII
2470	Amorpha fruticosa	indigobush	Muenster, Texas	B	1000 plants	XVIII
2392	Cephalanthus occidentalis	buttonbush	Washington, Oklahoma	C	300 plants	XVIII
2394	Panicum hemitomon	maidencane	Miss. PMC	C	10,000 rhizomes	XVIII
2376	Phragmites communis	common reedgrass	Lawrence, Texas	C	14,000 rhizomes	XVIII
2380	Phragmites communis	common reedgrass	Anahuac, Texas	C	500 rhizomes	XVIII
2372	Salix interior	sandbar willow	Miss. PMC	C	100 plants	XVIII
2437	Salix interior	sandbar willow	Clinton, Oklahoma	C	80 plants	XVIII
2792	Salix interior	sandbar willow	Knox City, Texas	C	2000 plants	XVIII
2386	Rosa wichuria	wichuria rose	NPMC	C	2500 whips	XVIII

CULTURAL STUDIES

I. Insect Problems and Control

Insects were controlled during the 1971 season as recommended by Dr. Emory Boring, Area Entomologist, Texas Agricultural Extension Service.

Most of the insect damage was much the same as 1970 except that there were no problems with green bugs. Diazanone was used to control thrip, aphid, midge and army worms.

II. Herbicide Studies

Since the Center is located in the heart of the cotton country, 2, 4-D and other volatile chemicals cannot be used after the emergence of cotton in the spring. Pre-emergence herbicides control grass seedlings as well as weeds and cannot be used. No chemicals were used during the 1971 growing season.

Simazine 80W weed killer was applied to the buffalograss plot in late February. Good control of summer annual weeds was obtained.

MSMA was used again for spot application of grass in fallow fields. It was also used on individual plants along borders and in production fields. The plants were saturated with one quart of materials in 20 gallons of water.

III. Fertilizer Studies

Different fertilizer rates are being applied on each production field. Four rows are left as a check for the crops response to fertilization.

The primary objective is to maintain a constantly high seed yield. Yields in forage by clipping a 2.9 foot segment of row in both the fertilized and unfertilized row. Green and dry weight is recorded in grams. This gives the response to fertilization. Clipping studies also are used to show response to fertilization between accessions of the same species.

IV. Legume Inoculant

Native legumes planted on the Center from other locations in the state often do not find the required nitrogen fixing organisms in the soil. Without them they are a light yellowish green color and do not make normal growth. Nitrogenous fertilizers are often poisonous to them.

Legume Inoculant, cont'd

During the past three years much work has been done developing inoculant for native legumes through correspondence with Dr. Joe Burton, Vice President, of The Nitrogen Company Inc. located at Milwaukee, Wisconsin. This was done by sending seed of various legumes to Dr. Burton for nitrogen fixation tests in growth chambers. It was found that often rhizobia developed for one legume is effective on a number of species. The table below shows the plant and rhizobis that would be effective as an inoculant.

SCIENTIFIC NAME

INOCULANT

Neptunia lutea

Robina

Eysenhardtia

Astrogalus

Desmanthus virgatus

Desmanthus illinois

Desmanthus depressus

Indigofera leptosepala

"El" Nitrogin

Rhynchosia minima

Rhynchosia minima

Robina ferrilis

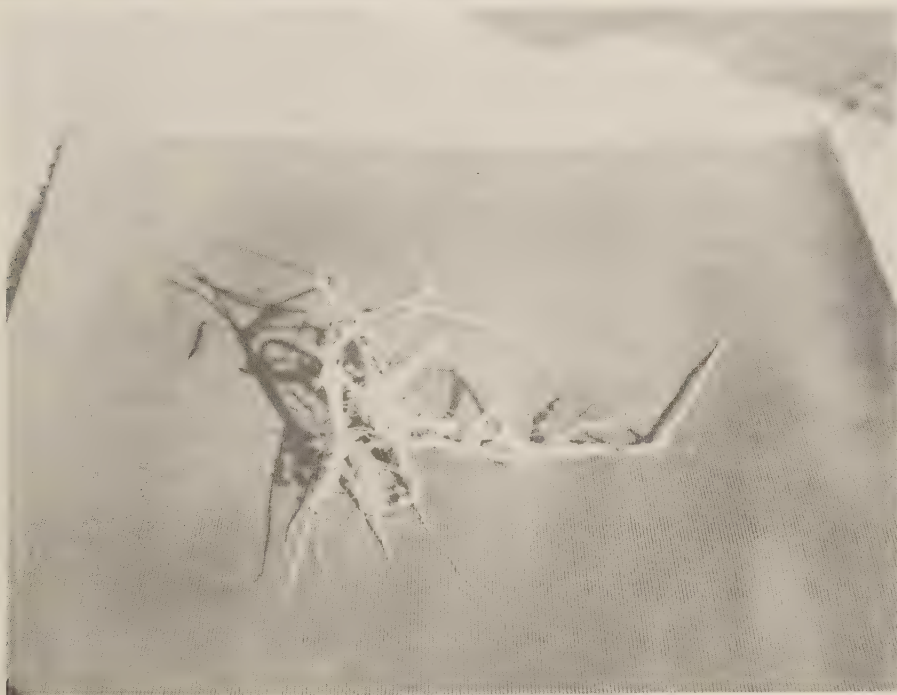
Robina fertilis

Stroplostyles helvola

Stroplostyles

Only two of the above listed plants require a special inoculant.

Work is still being done on other legumes.



Te-12784-6 Root of PMT-1879 trailing wildbean showing nodulation caused by nitrogen fixing rhizobium.

V. Germination Studies

In order to get proper placement on seed allotments going into evaluation plantings in the field it was found necessary to hold seed in storage an extra year. This allows the Plant Materials Specialist time to key the seed placement into the climatic and soil characteristics to best fit its natural range. In the case of exotics it gives time to place them in a wide soil and climatic difference for adaptation studies. Germination tests are run during the winter month following harvest. The 'direct' method is used to determine seeding rate in the field. Ten lots were checked at the State Seed Laboratory at Giddings, Texas so that results can be checked for difference in germination procedures.

The 'direct' method of germination is obtained by taking a sample of material that is bagged and ready to plant. A germination count is made on the sample and the number of sprouts, pure live seed, per pound of material is obtained. Planting rates for field evaluation plantings are determined by the number of sprouts in a pound of material.

VI. Soil Temperature Studies

Soil temperatures were recorded during the months prior to spring planting. Three readings were taken every other morning at 8:00 A.M. as follows: (1.) 3" depth on bare soil (2.) 3" depth, with buffalo grass cover and (3.) 6" depth on bare soil. The 1971 soil temperatures were taken between March 22, and June 25, 1971.

SPECIAL STUDIES

During the summer of 1971 there were several study projects carried out by the Plant Materials Specialist. They will appear in the Plant Materials Specialists report.

Those conducted off the Center include an observational area at Prairie View A & M at Abilene Christian College, at Clarendon and many others.

Cooperative studies with ARS at Bushland includes protein analysis of different plants being produced at the Center.

Dr. Bashaw ARS, College Station, continued his screening of buffel grasses for winter hardiness here on the Center. A total of 1980 individual space planted plants were established on the Center in the spring of 1971. The two accessions TAM-331 and 1835 were increased in 1970 but failed to survive the 1971 winter.

Atriplex canescens (Pursh.) Nutt.

Fourwing saltbush Atriplex canescens (Pursh.) Nutt. is a native evergreen shrub. It will grow on saline soils and is a valuable browse plant for livestock and wildlife. A .1 acre initial increase planting was planted in the spring of 1971. It resulted in a poor stand.

Special Studies, cont'd

It was noted that all of the plants that survived were males except one. A new study was started in 1972 using PMT-2086 and PMT-1041, the two best strains, to determine which accession produced the most female plants from seed. PMT-1041 has been established in several rod row plantings and resulted a majority male plants.

Method of harvest will be studied along with male-female ratio between the two accessions.

Leucaena retusa Benth.

Littleleaf leadtree Leucaena retusa Benth. is a small leguminous tree native to the Edwards Plateau and Trans-Pecos mountains and basins. It is valuable browse plant for domestic livestock and wildlife and could be used as a beautification plant. It is being studied in order to determine the best method of harvest. A report will follow at the conclusion of the study.

Eysenhardtia texana Scheele.

Texas kidneywood Eysenhardtia texana Scheele. is a deciduous leguminous shrub native to Central Texas. It is a valuable browse plant throughout its natural range. A special inoculant was prepared by Dr. Joe Burton, head of the Nitrogen Company in Milwaukee, Wisconsin. Texas kidneywood is being studied to find the best harvest method and method of establishment under field conditions. To date it has been a very difficult plant to work with. A report will follow at the conclusion of the study.

Viguiera stenoloba Blake

Skeletonleaf goldeneye Viguiera stenoloba Blake is a deciduous shrub native to the Trans-Pecos mountains and basins. It has value as a wildlife and livestock browse plant. It normally produces good quantities of seed but we have had difficulty getting germination in the germinator and in the field. A study is being conducted to establish the most economical way of harvest and establishment in field conditions.

Arundo donax L.

Giant reedgrass Arundo donax L. is a warm season perennial rhizomatous, introduced grass. It does not make seed and has been propagated by rhizomes for many years. It has value for use in critical area stabilization.

Special Studies, cont'd

A study was initiated in 1969 to determine (1.) if canes of giant reedgrass could be planted horizontal and/or upright during the dormant period (2.) when they could be planted with the greatest success (3.) what depth would insure the greatest success.

Canes of giant reedgrass were cut from a large stand located about two miles from the Center on FM-143 approximately one mile west of the Brazos river bridge.

The mature canes were cut into 6 joint lengths and planted horizontal in a trench 2 inches, 4 inches and 6 inches deep. These were replicated three times with one replication being irrigated as needed. This was done October 1, November 1, December 1, January 1, February 1, March 1, April 1, April 15, May 1, May 15, and June 1 in 1969, 1970 and 1971

RESULTS:

Six-joint canes planted in a trench with 6 inches of cover on December 1, 1969, 1970, and 1971 produced the largest number of rooted nodes.

Canes planted in October and November had to be stripped of leaves. The buds located on the inside curvature at each joint of the canes were not matured sufficiently to obtain consistent rooting. A few of them rooted where irrigation water was applied.

Frost killed the leaves during the first and second week of November all three years of the study. Canes cut for the December 1 plantings had buds that were a brownish green color and produced the highest percent of rooted nodes. This held true in January plantings except where there was sufficient cold damage, buds had to be sorted. This was done by touching the buds and if they had been killed by cold, they readily disarticulated from the cane. Using this procedure the number of rooted nodes were sufficiently lower than December plantings. There were 36 rooted nodes in the December plantings compared with 29 rooted nodes in the January plantings at 6 inches depth. Irrigation did not appear to be a factor.

In 1971 a new horizontal six-joint planting at 8 inch depth was planted on the same dates. The December 1, and January 1, plantings were the only nodes that sprouted. They reached the surface and never rooted.

During the same period 1969-1971, on the same dates, 10 canes were cut into lengths containing two-joints each. These were planted upright at a slight angle with one joint left above ground and the cane extending approximately eight inches in the soil. They were irrigated as needed. There were only five of them rooted out of a possible 330 planted during the three year study.



Te-13271-6 Giant cane study area showing 10 2-joint upright canes in the foreground and plants resulting from horizontal planting of 6-joint canes in the background.

Panicum obtusum H.B.K.

Vine mesquite Panicum obtusum H.B.K. is a low growing perennial warm season stoloniferous grass. Native stands are found growing in sandy or gravelly soils mostly along banks of rivers, arroyos and irrigation ditches as far south as Mexico. Seed collected from these sites are mostly sterile. A seed production block was established on the Center in 1966 and it failed to produce viable seed.

The initial seed production block was divided into 9 study plots, containing .0282 acres each. Each block was subjected to different cultural treatment in order to induce seed formation.

RESULTS:

The high seed yield, 62.8 pounds of firm seed per acre, was obtained by using a split application of nitrogen sulphate. The nitrogen sulphate was applied at a rate of 90 pounds of available nitrogen on April 15 and July 15 each year. Four inches of irrigation water was applied April 15, August 15 and September 1, regardless of rainfall.

Special Studies, cont'd

It continued to produce vegetatively after seed set. At harvest time the seed heads were completely obscured by vegetative growth and it is doubtful if it could have been harvested with a combine.

Twenty-eight new accessions of vine mesquite were collected in Texas and Oklahoma. They will be planted in peat pots in the rooting bed and space planted for study. Hopes are that an ecotype with inherited seed producing characteristics can be found.

SEED & PLANT DISTRIBUTION

A total of 5383 pounds of seed, 7526 plants, 8470 rhizomes, 100 whips, and 190 small packets of seed were distributed in Texas and Oklahoma and other Plant Materials Centers in 1971.

Texas

3885# seed
8470 Rhizomes
4180 Plants
100 Whips

Other PMC's

66# Seed
680 Plants

Other States

40# Seed
400 Plants

Oklahoma

1383# seed
2266 Plants

NPMC

45# Seed

Colleges & Universities

64# Seed

AIR-TRANSPORT GRASS SEED STRIPPER

The air-transport grass seed stripper was used to harvest old world bluestems, cane bluestem, sideoats grama, fourflower trichloris, wilmann lovegrass, Arizona cottontop and indiagrasses. Excellent results were obtained on the Arizona cottontops, and twoflower trichloris, as no cleaning of seed material was needed. There were few stems and leaves; however the material was run through a hammermill to reduce them to a size to facilitate planting. Arizona cottontop and twoflower trichloris are next to impossible to harvest with a combine.

The sideoats grama and indiagrasses required a minimum of cleaning. These three along with the other grasses had a combine used for clean up of the remaining seed crop.

Seven different types of grasses were used to obtain data for comparative checks.

INFORMATION PROGRAM

The information program was much the same as in previous years. Many groups and individuals visited the Center during 1971. In-service training was given on plant materials to summer student employees of the Soil Conservation Service. Indoctrination at the Center was part of their training.

Several news articles were released to the local newspaper.

Weekly Weather Observations - Knox County News
Major Storm Activities - Abilene Reporter News
Soil Temperature - Knox County News
(Bare Soil and with vegetative cover during
spring planting months.)

Fall and Spring Technical Committee meeting - Abilene Reporter
News, Knox County News.

Two major articles - Farmer-Stockman - Dale Allen and the editor.
Major article - West Texas Livestock Weekly.
Two major articles - Wichita Falls Record News
Two major articles - Abilene Reporter News.



Te-12459-5 PM-Training - Group of new AC's and field people from Texas receiving a review of Center operations.



Te-12784-3 Go-devil blade attached on toolbar with border disk attachment to regulate depth and blade angle. It was used to harvest prostrate bundle-flower, least snoutbean and trailing wildbean.



Te-12784-5 Trailing wildbean being clipped just below the soil surface for drying prior to being combined.

Problem Area Reference

- I Playa lakes
- II Field waterways
- III Redbed clay sites
- IV Creosote - Tarbush rangeland
- V Perennial warm season pasture
- VI Warm season pasture - moderate saline
- VII Range - Clay flat & saline
- VIII Rough stony sites
- IX Sandy and gravelly sites
- X High Plains, range
- XI Range, deep sand
- XII Range forb establishment
- XIII Slickspot soils
- XIV Cool season pasture
- XV Range grass improvement
- XVI Beautification
- XVII Wildlife, food & habitat improvement
- XVIII Shoreline stablization
- XIX Critical area stabilization

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1971 ANNUAL REPORT

PART II

JAMES E. "BUD" SMITH PLANT MATERIALS CENTER Knox City, Texas

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APR 1 1975



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Temple, Texas

1971 ANNUAL REPORT

PART II

JAMES E. "BUD" SMITH
PLANT MATERIALS CENTER
KNOX CITY, TEXAS

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INTRODUCTION

I. Personnel

The Plant Materials Center was opened in 1965 by Arnold G. Davis, Manager and Ulric H. Lea, Plant Biological Technician. During 1968, the Center lost both of the employees. In June, Arnold Davis transferred to the State Office in Temple and assumed the full-time responsibilities of Plant Materials Specialist for Texas. On July 12, 1968, Ulric Lea retired from the Soil Conservation Service after twenty four years of service.

On June 3, 1968, C. L. Hacker, Jr. reported to the Center to replace Ulric Lea as Plant Biological Technician. He had previously been Conservation Technician in the Matador, Texas Work Unit for eleven years.

On November 3, 1968, Howard A. Carleton was named manager of the Center. He had been assistant manager since July of 1966. The assistants position was not filled. Howard resigned from the Soil Conservation Service in the spring of 1969. Jacob C. Garrison was named manager of the Center in May 1969.

During 1971 six temporary employees worked a total of 851 days. Two summer aides worked 66 days during the summer making a total of 917 man days used. This includes Mrs. Frances Kent, Clerk-typist and the nursery workers. Temporary employees working at the Center during the summer were Johnny L. Hendrix, Richard Herring, Hershell Tankersley, Jerry W. Howell and Joe P. Earp.

Robert W. Strickland and Kenneth D. Woodall were summer aides.

II. Location and principal Crops of the Region

The Center is in the Rolling Red Plains Land Resource area, and is located 2 miles North and $2\frac{1}{2}$ miles West of Knox City on Farm Road 1292. The site is about latitude 33 degrees North and longitude 100 degrees West at 1530 feet above sea level.

Principal crops of this region are cotton, grain sorghum, wheat, guar and vegetables. Most of the land around Knox City is in cultivation, but there are several large ranches within a radius of 50 miles.

III. Organization and Objectives

When the Plant Materials Center was first established, it served, primarily the State of Texas. It has since assumed the responsibility of evaluating and producing plant materials for several land resource areas in the State of Oklahoma.

The major objectives of work at the Center are:

1. The assembly and evaluation of plants having potential value for use in range and pasture plantings, critical areas, recreation and beautification projects, wildlife area development and shore line stabilization for wave action on watershed structures.

2. A determination of cultural and management techniques required to establish and grow these plants both at the Center and in the field.

3. To make limited seed increase of the more promising plants for field evaluation plantings away from the Center.

4. To make available to commercial growers seed of those accessions that are proved under field conditions to have special value for specific uses. Plants assembled for study at the Center will consist mainly of native species, but introduced materials will also be included as may seem desirable.

IV. Physical Facilities

A. Land--Sixty acres of leased land in a nearly level tract is 2200 feet long, north and south, and 1200 feet wide, east and west. It has been divided into 12 fields of 5 acres each. A new lease was acquired in November of 1970. It consists of approximately 10 acres joining the original 60 acre tract on the southwest corner and measuring 490 feet wide east and west, and 935 feet long, north and south. It will be divided into 2 four acre fields and one 2 acre field with roads corresponding with present existing Center roads.

B. Soil--Approximately 90 percent of the soil is a friable loam or fine sandy loam surface soil varying in depth from 10 to 30 inches over a sandy clay loam or clay subsoil. Remainder of the soil is slightly heavier, having a fine sandy loam surface soil over a clay loam sub-soil with a caliche layer between 20 and 36 inches.

C. Erosion Problems--Water erosion is not a problem but wind erosion poses a constant threat during the spring and late fall months. Cover crops or tillage practices must be employed to control wind erosion on the open fields not planted to grass.

D. Irrigation--Slopes in all fields average less than one percent. Irrigation water is applied by gravity flow. The irrigation water is pumped from five shallow wells by electrically driven turbine pumps. Three of the wells, capable of producing a total of approximately 400 g.p.m., are connected underground plastic pipeline. Five risers are conveniently located for gated pipe distribution. Two of the wells, capable of producing 200 g.p.m. can be hooked into the system or used on the newly acquired 10 acre lease. A sprinkler system was obtained from surplus in 1967 and used to irrigate selected fields.

Between 20 and 24 inches of irrigation water were applied to initial increase and production fields in 1970.

E. Buildings--A 40' x 80' steel building is supplied as a part of the lease. This building provides space for the seed cleaning equipment; shop area; seed storage and 10' x 20' office in the northeast corner.

In addition, the Soil Conservation Service constructed a temporary 20' x 45' open-front machine shelter in 1967. In 1970 another 20' x 75' open-front machine shelter was constructed for sheltering the farming equipment.

V. Climatic Data

A. Precipitation

	<u>1971</u>	<u>1970</u>	<u>1969</u>	<u>1968</u>	<u>1967</u>	<u>Avg. (25 Years)</u>
January	0.00	0.00	.43	5.37	0.00	.85
February	0.31	1.57	1.39	1.24	.08	1.12
March	0.00	4.40	1.62	4.23	.31	1.07
April	1.32	.31	1.18	.94	9.03	1.89
May	6.10	2.80	5.63	3.43	.65	4.12
June	1.25	.42	1.69	.42	2.03	2.70
July	1.84	.00	.33	1.32	5.74	1.94
August	5.58	.96	2.78	3.29	.11	1.44
September	3.91	4.90	5.76	.45	2.41	2.22
October	6.08	3.37	4.32	1.39	1.25	2.50
November	0.62	.06	.71	2.74	.53	1.12
December	1.94	.28	1.07	.58	.83	1.08
Total	28.95	19.07	26.91	25.40	22.97	22.05

B. Temperatures--Average by month

	<u>1971</u>	<u>1970</u>	<u>1969</u>	<u>1968</u>	<u>1967</u>	<u>Avg. (25 Years)</u>
January	42.40	37.77	44.6	41.4	46.2	43.4
February	44.98	47.5	45.8	41.3	45.9	48.7
March	52.46	47.9	44.8	52.5	61.0	54.8
April	62.86	62.5	64.5	60.6	69.1	65.1
May	71.77	71.1	70.5	71.0	70.0	72.4
June	79.91	72.8	79.3	78.7	80.5	81.4
July	81.43	78.8	87.4	81.7	80.8	83.8
August	81.88	82.7	84.2	81.6	79.0	84.5
September	71.43	75.0	73.6	72.9	71.8	75.0
October	64.72	60.3	58.9	67.5	63.5	65.4
November	52.40	49.9	52.1	50.1	53.2	53.7
December	46.98	47.8	44.8	42.9	41.7	46.1

C. Freeze Data--Freeze threshold of 32 degrees F.

Mean date of last spring occurrence - 28 March

Mean date of first fall occurrence - November 15

Number of days between dates - 232 days.

V. Climatic Data cont'd

1971

Date of last spring occurrence - March 20
Date of first fall occurrence - November 7
Number of days between dates - 210

D. Weather Summary - 1971

The winter of 1970-71 was dry. The lowest temperature recorded was 4 degrees on January 5. On February 8 a low of 6 degrees was recorded. The longest continuous cold spell occurred between December 31 and January 8. Night time low temperatures below 20 degrees were recorded 9 times during the winter. The temperature failed to rise above 40 degrees during the day only 3 times during the winter. The lowest daytime reading was 21 degrees on February 7.

A high temperature of 103 degrees was recorded on July 5, 1971. Temperatures rose to 100 degrees 20 days during the summer with the longest consecutive period being for 4 days, July 4-7. This compares to 20 days of 100 degree weather in 1970 with the longest consecutive period being 6 days from July 6-11, 1970.

A trace of moisture was recorded in January. Only .31 inches of rainfall was recorded during February and March. The 25 year average for this period is 2.19 inches. April, May and June brought 8.67 inches of rain. The 25 year average for the April, May and June rainfall is 8.71 inches. There were 1.84 inches in July, 5.58 inches in August and 3.91 inches in September. This brought the total rainfall to 20.31 inches or 2.96 inches above normal. October, November and December brought 8.64 inches for an annual 1971 rainfall of 28.95 inches compared with 22.05 inches for the 25 year average rainfall for this area.

Eighty-five percent of moisture occurred during the growing season. This compares to 67 percent during the 69-70 growing season and 64 percent for the 25 year average.

NEW ACCESSIONS

Number and Source

Four-hundred and twenty-six new accessions were planted in the initial observational area in 1971. These were received from field collections in Texas and Oklahoma, from other SCS Plant Materials Centers, State and Federal agencies. Most accessions were received as seed except where assemblies were transplanted for possible use on watershed structures. One hundred and eleven of the new accessions planted consisted of a big bluestem Andropogon gerardi Vitman that were collected over a five state area.

Initial Observational Area

A complete listing of all accessions growing in the initial and advanced evaluation area during the 1971 growing season is shown in Appendix A. Many other field collections received as seed have not been planted. These will be planted as time and space allows.

Nine-hundred and sixty-two accessions including 623 accessions of grasses, 220 accessions of legumes and forbs and 119 accessions of woody plants are listed.

We are attempting to plant assemblies of collections as a total unit for study wherever possible. The assembly will generally include a large number of collections of the same species which will be compared to a standard commercial variety when available.

Seven assemblies that were planted in the initial evaluation area in 1967 and 1968 are complete. Performance notes taken from 1968 through 1971 on these assemblies follow. Accession numbers that rated highest will be removed vegetatively to another location during the 1972 winter and the initial plantings can be destroyed.

Bouteloua gracilis H.B.K. Lag. ex Steud.
bluegrama

I. INTRODUCTION:

Bluegrama Bouteloua gracilis (H.B.K.) Lag. ex Steud. is a native, warm season perennial grass. It is adapted to a wide range of soil and climatic conditions characteristic of the dry short grass prairie that occurs from Canada to Mexico. Bluegrama has a distinct advantage over the tall grasses of the Plains in that it cures well and is an excellent winter forage plant.

II. PROBLEM:

Bluegrama is an important species in the High Plains of Texas and Western Oklahoma (Land Resource areas 42-77-78-81 and 84). There are no adapted varieties recommended for seed increase under irrigation and intense management. The seed that is being used in this area is harvested commercially from natural grassland. The natural grasslands occur from Texas to Montana and much of the seed that is harvested is not adapted to Texas and Oklahoma. 'Lovington' is the only name variety and it was selected and released in New Mexico. The use of 'Lovington' is limited because of rust and folier disease.

III. OBJECTIVE:

To develop and release a variety and/or varieties of bluegrama grass for use in western Oklahoma and Texas.

IV. PROCEDURE:

A. Assembly:

Twenty-five accessions were collected in North Texas and Oklahoma by District Conservationists and Plant Science Specialists. The collection sites were selected to represent major natural grassland areas where bluegrama is an important part of the plant community. There were sixteen accessions planted in 1967 and nine accessions in 1968.

B. Initial Evaluation:

1. Location: The assembly is located in the James E. "Bud" Smith Plant Materials Center, B-Block, row 69-80 and 91-107, Tier 11.
2. Soil: Miles fine sandy loam, well drained and nearly level.
3. Planting Plan:
 - a. Date of Establishment: May 2, 1967 and May 3, 1968.
 - b. Plot Design: Single row, non-replicated plots, 20 feet in length spaced on 40 inch centers. A guard row was planted on the outside so that all readings were taken from an inside row.
 - c. Establishment: The assembly was hand planted using a single row seeder with disc openers to secure uniform depth of planting. Seeding rate was adjusted according to seed quality.
 - d. Standards: PMT-1221 bluegrama a composite of materials from PMT-1216, 1218, 1219 resulting from earlier studies has been released for seed production and was used as a standard for comparison.
4. Management:
 - a. Seed Bed Preparation: A clean, firm seed bed was prepared by disking and harrowing. The field had been clean fallowed 3 years prior to planting.
 - b. Weed Control: The field was clean following 3 years of clean fallow; however, weeds were controlled by cultivation and hand weeding as necessary.

- c. Fertilization: Soil pH averages 8.3. The planting received 40 pounds of available phosphorous in the spring of 1970. Tests have shown that potash is not needed in this locality.
- d. Irrigation: The assembly was furrow irrigated using gravity flow and gated pipe outlets for row distribution to insure uniform emergence, then irrigation water was applied during severe stress. It is felt that this would not alter final results of the trials. Field tests under range conditions will bear out the final selection.

Bouteloua gracilis - B-Block (1968 Notes)

<u>FMT</u>	<u>Origin</u>	<u>Plant</u> <u>Date</u>	<u>Seedling</u>		
			<u>Stand/1</u> :6-3-68:	<u>Vigor/2</u> :6-25-68:	<u>Size/3</u> :6-25-68:
697	Aspermont, Tex.	5-3-68	1	3	5x5
1659	Henrietta, Tex.	5-3-68	1	3	6x6
1660	Mineral Wells, Tex.	5-3-68	1	3	4x4
1661	Haskell, Tex.	5-3-68	5	5	3x3
1214	Knox City, Tex.	5-3-68	1	3	5x5
1662	Matador, Tex.	5-3-68	7	7	2x2
1663	Sweetwater, Tex.	5-3-68	3	3	4x4
1215	Archer City, Tex.	5-3-68	1	3	4x4
1664	Stamford, Tex.	5-3-68	1	5	3x4
1221	Composite	5-3-68	1	3	5x5
1665	Seymour, Texas	5-3-68	7	7	3x3
1666	Vernon, Texas	5-3-68	1	3	4x4
99	'Marfa'	5-3-68	7	5	3x3
1810	'Lovington'	5-3-68	3	3	6x7
1807	'Commercial'	5-3-68	3	3	5x5
697	Aspermont, Tex.	5-3-68	1	3	5x4

(1969 Notes)

<u>FMT</u>	<u>Leaf</u>				<u>Leaf</u>				
	<u>Stand/1</u> 7-10-69:	<u>Prod./4</u> :7-10-69:	<u>Size/3</u> :7-10-69:	<u>Size/3</u> :8-10-69:	<u>Stand/1</u> 7-10-69:	<u>Prod./4</u> :7-10-69:	<u>Regrowth/6</u> :7-10-69:	<u>Clip/7</u> :7-10-69:	
697	1	3	22-16x18	22-15x20	22-15x20	3	3	600	1
1659	1	3	20-8x18	20-8x18	20-8x18	3	1	500	1
1660	1	3	14x18	22-8x16	22-8x16	3	5	525	1
1661	5	7	15x18	19-4x12	19-4x12	3	5	325	3
1214	1	3	16x18	19-8x18	19-8x18	3	1	450	5
1662	5	3	15x16	19-8x12	18-8x12	7	7	325	1
1663	3	5	14x18	19-7x12	19-7x12	3	3	450	1
1215	1	3	16x18	18-6x16	18-6x16	3	3	450	3
1664	1	7	14x18	16-7x12	16-7x12	7	5	400	3
1221	1	3	14x18	19-6x18	19-6x18	5	3	475	1
1665	5	5	16x14	19-6x17	19-6x17	5	5	350	1
1666	1	3	30-18x18	22-7x15	30-7x15	3	3	450	1
99	5	3	30-18x22	27-11x18	30-11x18	3	1	300	1
1810	3	3	18-12x12	27-7x18	27-7x18	-	-		1
1807	3	3	18-8x22	19-6x15	19-6x15	-	-		1
697	1	3	16x18	21-8x16	21-8x16	-	-		3

Bouteloua gracilis - B-Block (1970 Notes)

	Stand/ <u>1</u>	Vigor/ <u>2</u>	Seed Prod./ <u>5</u>	Leaf Prod./ <u>4</u>		Height <u>3</u>	Measure <u>3</u>	Measure <u>3</u>	Clip/ <u>7</u>	Regrowth <u>6</u>
<u>PMT</u>	<u>7-8-70::</u>	<u>4-20-70::</u>	<u>10-20-70::</u>	<u>7-8-70::</u>	<u>3-4-70::</u>	<u>5-21-70::</u>	<u>7-8-70::</u>	<u>10-20-70::</u>	<u>10-21-70::</u>	<u>10-20-70</u>
697	1	5	3	3	emerg.	13"	12x30	21-12x30	300	5
1659	1	5	3	3	emerg.	14"	9x27	30-12x30	325	5
1660	1	5	3	3	emerg.	14"	6x30	26-10x28	350	5
1661	5	5	3	7	emerg.	10"	10x29	20-12x26	175	5
1214	1	3	5	3	emerg.	14"	12x29	28-12x30	350	5
1662	5	5	3	5	emerg.	12"	9x34	28-10x25	250	5
1663	3	5	3	3	emerg.	11"	9x31	27-10x30	400	5
1215	1	5	3	3	emerg.	13"	9x31	28-12x30	275	5
1664	1	5	3	3	emerg.	13"	10x33	28-10x36	275	5
1221	1	5	3	3	emerg.	14"	10x29	28-12x30	325	5
1665	5	5	1	7	emerg.	10"	8x29	24-10x25	250	7
1666	1	5	3	3	emerg.	14"	9x31	30-12x33	250	5
99	5	5	5	3	emerg.	15"	27-9x33	44-12x40	525	1
1810	1	3	1	3	emerg.	13"	23-9x27	30-12x32	250	5
1807	1	5	5	5	emerg.	16"	18-8x22	28-10x25	175	5
697	1	5	3	3	emerg.	14"	10x30	28-12x30	200	5

(1971 Notes)

		Height <u>3</u>	Leaf Prod/ <u>4</u>	Size/ <u>3</u>	Vigor/ <u>2</u>	Size/ <u>3</u>	Size/ <u>3</u>	Seed Prod/ <u>5</u>	Matur- ity	Dis- ease	Leaf Prod/ <u>4</u>	Clip <u>7</u>
<u>PMT</u>	<u>3-8-71:</u>	<u>4-9-71:</u>	<u>4-9-71:</u>	<u>5-15-71:</u>	<u>5-15-71:</u>	<u>6-24-71:</u>	<u>10-15-71:</u>	<u>10-15-71:</u>	<u>Date ::</u>	<u>/8</u>	<u>10-15:</u>	<u>10-13</u>
697	emerg.	6"	3	9x16	5	11x22	25-11x24	5	10-15	1	3	200
1659	emerg.	4"	7	9x20	5	12x22	24-11x24	5	10-15	1	5	275
1660	emerg.	6"	7	9x16	3	11x20	24-11x24	7	10-15	1	5	250
1661	emerg.	6"	7	8x14	5	12x22	28-12x23	5	10-15	1	5	450
1214	emerg.	6"	7	9x16	5	12x24	25-12x24	5	10-15	1	5	200
1662	emerg.	6"	7	9x16	5	12x24	24-11x24	5	10-15	1	3	275
1663	emerg.	6"	3	9x17	5	12x22	24-12x24	5	10-15	1	3	225
1215	emerg.	6"	7	10x16	5	12x24	25-12x23	5	10-15	1	3	225
1664	emerg.	6"	7	9x15	5	12x24	24-12x24	5	10-15	1	5	200
1221	emerg.	6"	7	10x17	5	13x24	26-12x24	3	10-15	1	3	350
1665	emerg.	4"	7	9x15	5	11x20	23-12x24	5	10-15	1	5	200
1666	emerg.	4"	7	9x18	5	11x22	24-12x24	5	10-15	1	3	250
99	emerg.	8"	7	15x22	5	20-12x24	29-12x30	7	9-1	1	1	300
1810	emerg.	6"	7	9x18	5	12x24	23-12x30	5	10-15	1	3	225
1807	emerg.	6"	7	7x15	7	9x16	27-11x20	3	10-15	1	5	150
697	emerg.	6"	5	10x18	5	13x24	26-11x24	3	10-15	1	3	225

- /1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /3 Measurement - example - 30-12x31 -
30 = height; 12 = leaf height; 31 = plant at 12" height.
- /4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /5 Rating 1-9 with 1 excellent and 9 none, judged by the number culms.
- /6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /7 Dry forage weight in grams. 2.9 ft. row clipped.
- /8 No disease recorded.

SUMMARY

Bouteloua gracilis - bluegrama
16 accessions -B-Block 1968-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance Rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/5</u>
697	Aspermont, Texas	49	12.2	1	0.95	3
1659	Henrietta, Texas	53	13.2	3	0.95	3
1660	Mineral Wells, Texas	57	14.2	6	0.97	2
1661	Haskell, Texas	81	20.2	10	0.82	6
1214	Knox City, Texas	57	14.2	6	0.86	5
1662	Matador, Texas	81	20.2	10	0.73	8
1663	Sweetwater, Texas	57	14.2	6	0.93	4
1215	Archer City, Texas	55	13.7	5	0.82	6
1664	Stamford, Texas	69	17.2	9	0.75	7
1221*	Composite	53	13.2	3	1.00	1
1665	Seymour, Texas	83	20.7	11	0.69	9
1666	Vernon, Texas	53	13.2	3	0.82	6
99	'Marfa'	64	16.0	7	0.97	2
1810	'Lovington'	40	13.3	4	0.61	10
1807	'Commercial'	50	16.6	8	0.42	12
697	Aspermont, Texas	38	12.6	2	0.55	11

* PMT-1221 used as a standard for comparison.

PMT-1221 -

Composite of materials from Lawton, Waurika, Duncan and Walters, Oklahoma was used as a standard for comparison. It rated first in forage yield and 3rd. in seedling vigor, stand, leaf production and seed production.

PMT-697 - Aspermont, Texas

Rated first in stand, seedling vigor, leaf production and seed production. It rated 0.95 times the yield obtained from PMT-1221.

PMT-1659 - Henrietta, Texas

Rated 3rd. in seedling vigor, stand, leaf production and seed production. The average forage yield was 0.95 that of PMT-1221, equal to PMT-697 from Aspermont, Texas.

PMT-1666 - Vernon, Texas

Rated 3rd. in stand, seedling vigor, leaf production and seed production. Forage yield was only 0.82 that of PMT-1221 or number 5 in rank. It also had an early maturity date compared to PMT-1221.

- /1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1967 - 1971 with 1 = best; 9 = none.
- /2 Average/yr. - Total performance rating divided by 4.
- /3 Rank - 1-11 with 1 as best, performance rating.
- /4 Percent of air dry forage yield of PMT-1221.
- /5 Rank - Rated 1-12 with 1 best, forage yield.

Bouteloua gracilis - B-Block (1967 Notes)

<u>PMT</u>	<u>Origin</u>	<u>Date</u>	<u>Date</u>	<u>Seed-</u>	<u>Size</u>	<u>Size</u>	<u>Size</u>	<u>Stand</u>	<u>Leaf</u>	<u>Spr-</u>	<u>Seed</u>
		<u>Planted:</u>	<u>Emerg:</u>	<u>ling</u>	<u>/2:</u>	<u>/3</u>	<u>/3</u>	<u>/1</u>	<u>Prod.</u>	<u>ead</u>	<u>Prod.</u>
				<u>Vigor</u>	<u>6-29</u>	<u>7-28</u>	<u>11-30-67</u>	<u>6-29</u>	<u>11-30</u>	<u>11-30</u>	<u>11-30</u>
					<u>/3</u>	<u>/3</u>	<u>/3</u>	<u>/4</u>	<u>/9</u>	<u>/5</u>	
697	Aspermont, Tex.	5-2-67	5-17-71	3	5"	8x11	22-8x10	1	3	5	3
1214	Knox City, Tex.	5-2-67	5-17-71	3	5"	8x11	23-8x10	1	3	5	3
1215	Archer City	5-2-67	5-17-71	3	4"	8x11	22-7x10	1	3	5	3
1216	Duncan, Okla.	5-2-67	5-17-71	1	6"	9x11	23-8x12	1	3	5	5
1217	Lawton, Okla.	5-2-67	5-17-71	3	5"	8x11	20-6x9	1	5	5	5
1218	Walters, Okla.	5-2-67	5-17-71	3	4"	8x10	25-7x8	1	5	5	3
1219	Waurika, Okla.	5-2-67	5-17-71	1	6"	9x13	24-9x15	1	3	3	3
1220	Waurika, Okla.	5-2-67	5-17-71	3	5"	9x13	20-7x10	1	3	5	3
1221	Composite	5-2-67	5-17-71	3	5"	8x10	21-7x9	1	3	5	3

(1968 Notes)

<u>PMT</u>	<u>Size</u>	<u>Size</u>	<u>Size</u>	<u>Leaf</u>	<u>Seed</u>	<u>Spread</u>	<u>Disease</u>	<u>Stand</u>	<u>Clip</u>
	<u>/3</u>	<u>/3</u>	<u>/3</u>	<u>Prod/4</u>	<u>Prod/5</u>	<u>/9</u>	<u>/8</u>	<u>/1</u>	<u>/7</u>
	<u>3-27-68</u>	<u>5-15-68</u>	<u>8-11-68</u>	<u>9-13-68</u>	<u>9-13-68</u>	<u>9-13-68</u>	<u>8-11-68</u>	<u>9-13-68</u>	
697	4"	9x10	23-9x11	5	5	5	1	1	300
1214	4"	9x9	24-10x14	3	7	7	1	1	250
1215	4"	10x10	28-10x13	3	9	5	1	1	330
1216	4"	10x10	20-10x13	3	9	5	1	1	300
1217	4"	9x8	20-9x10	5	7	5	1	1	200
1218	5"	9x10	21-10x11	3	7	5	1	1	300
1219	5"	11x10	24-12x15	3	9	5	1	1	300
1220	5"	10x11	20-10x13	3	7	5	1	1	250
1221	5"	10x11	21-10x13	3	7	5	1	1	300

(1969 Notes)

<u>PMT</u>	<u>Stand</u>	<u>Leaf</u>	<u>Seed</u>	<u>Spread</u>	<u>Maturity</u>	<u>Size</u>	<u>Clip</u>
	<u>/1</u>	<u>Prod/4</u>	<u>Prod/5</u>	<u>/9</u>	<u>Date</u>	<u>/8</u>	<u>/7</u>
	<u>9-12-69</u>	<u>9-12-69</u>	<u>9-12-69</u>	<u>9-12-69</u>		<u>9-12-69</u>	
					<u>Disease</u>		
697	1	3	5	5	10-20	1	24-9x11 400
1214	1	5	7	7	10-20	1	26-10x13 350
1215	1	5	5	5	10-20	1	32-10x13 300
1216	1	3	7	5	10-20	1	23-10x13 275
1217	1	5	7	5	10-20	1	24-9x10 300
1218	1	5	7	5	10-20	1	25-9x10 350
1219	1	3	9	5	10-20	1	24-12x15 280
1220	1	5	7	5	10-20	1	24-10x13 300
1221	1	3	7	5	10-20	1	24-10x13 400

Bouteloua gracilis - B-Block (1970 Notes)

		Height <u>/3</u>	Vigor <u>/2</u>	Height <u>/3</u>	Measure <u>/3</u>	Regrowth <u>/6</u>	Seed Prod./5	Clip <u>/7</u>	Stand <u>/1</u>	Leaf Prod./4
PMT		3-4-70:	3-21-70:	3-21-70:	5-21-70:	10-19-70:	10-19-70:	10-19-70:	10-6-70:	5-24-70: 5-24-70
697	emerg.	2"	3	11x20	32-10x26	2"	3	400	1	3
1214	emerg.	2"	5	10x20	31-12x29	1"	5	350	1	7
1215	emerg.	2"	5	10x20	28-10x30	1"	5	300	1	7
1216	emerg.	2"	3	10x20	30-10x27	1"	5	275	1	3
1217	emerg.	2"	3	11x20	29-12x26	1"	3	300	1	7
1218	emerg.	2"	3	11x20	30-12x28	1"	5	350	1	7
1219	emerg.	2"	3	11x20	40-14x32	1½"	1	280	1	3
1220	emerg.	2"	5	11x20	30-12x29	1"	3	300	1	3
1221	emerg.	2"	3	12x20	30-12x29	1½"	3	400	1	3

(1971 Notes)

		Height <u>/3</u>	Vigor <u>/2</u>	Stand <u>/1</u>	Leaf Prod./4	Size <u>/3</u>	Size <u>/3</u>	Size <u>/3</u>	Size <u>/3</u>	Seed Prod./5	Clip <u>/7</u>
PMT		3-2-71:	4-12-71:	4-12-71:	5-24-71:	9-3-71:	5-24-71:	6-24-71:	9-3-71:	10-15-71:	10-15-71: 10-15-71
697	emerg.	4"	5	1	5	11x18	12x22	16-9x11	27-12x22	3	275
1214	emerg.	4"	5	1	7	14x20	12x22	22-12x20	28-12x21	5	175
1215	emerg.	4"	5	1	7	10x15	11x22	28-10x20	26-12x20	7	200
1216	emerg.	4"	5	1	7	11x12	9x16	20-11x12	24-11x19	7	175
1217	emerg.	4"	5	1	7	11x16	10x20	30-12x16	27-11x20	3	150
1218	emerg.	5"	5	1	7	12x18	11x18	28-12x12	26-11x18	3	200
1219	emerg.	4"	5	1	7	10x10	9x16	20-10x16	25-11x20	5	150
1220	emerg.	5"	3	1	3	15x22	12x18	20-15x22	25-12x22	5	200
1221	emerg.	5"	3	1	5	15x20	12x18	22-12x18	22-12x18	5	175

/1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/3 Measurement - example - 30-12x31 -
30 = height
12 = leaf height
31 = plant at 12" height

/4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/5 Rating 1-9 with 1 excellent and 9 none, determined by number of culms.

/6 Rating 1-9 with 1 excellent and 9 none, actual measurement.

/7 Dry forage weight in grams. 2.9 ft. row clipped.

/8 No disease recorded.

/9 Ability to tiller. Rating 1-9 with 1 excellent and 9 none, ocular estimate.

SUMMARY

Bouteloua gracilis - bluegrama
9 Accession - B-Block 1967-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance</u>		<u>Rank/3</u>	<u>%</u>	<u>Rank/5</u>
		<u>Rating/1</u>	<u>Ave./yr./2</u>		<u>Yield/4</u>	
697	Aspermont, Texas	71	17.8	1	1.04	1
1214	Knox City, Texas	91	22.7	9	0.85	6
1215	Archer City, Texas	89	22.2	8	0.92	4
1216	Duncan, Oklahoma	83	21.1	5	0.89	5
1217	Lawton, Oklahoma	87	21.7	7	0.77	9
1218	Walter, Oklahoma	85	21.2	6	0.93	3
1219	Waurika, Oklahoma	75	18.7	4	0.85	7
1220	Waurika, Oklahoma	74	18.5	3	0.83	8
1221*	Composite	73	18	2	1.00	2

* 3000 pounds of dry forage yield per acre.

PMT-697 - Aspermont, Texas

Rated first in stand, seedling vigor, leaf production, and seed production. It also rated first in forage yield, 1.04 times that of PMT-1221 a composite from Oklahoma used as a standard.

PMT -1221 -

Composite of materials from Lawton, Waurika, Walters and Duncan, Oklahoma rated second in stand, seedling vigor, leaf production and seed production. It also rated second in forage yield and was used as a standard for comparison.

- /1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1967 - 1971 with 1 = best; 9 = none.
- /2 Average/yr. - Total performance rating divided by 5.
- /3 Rank - 1-9 with 1 as best, performance rating.
- /4 Percent of PMT-1221 used as a standard.
- /5 Rank - Rated 1 - 9 with 1 best, yield data.

Andropogon Gerardi - Vitman
big bluestem

I. INTRODUCTION:

Big bluestem Andropogon gerardi Vitman is a warm season perennial grass. It has deep roots and spreads by short underground stems. Its major distribution is on moist, well drained loamy soils of relatively high fertility in the Central states and Eastern Great Plains. The forage is highly preferred by livestock.

II. PROBLEM:

'Kaw' and 'Pawnee' are named varieties of big bluestem that were developed in Kansas and Nebraska. There is a need for superior strains of big bluestem for the area south of the adapted range of 'Kaw' and 'Pawnee' big bluestem. 'Kaw' and 'Pawnee' are both northern varieties and when south of their adapted range they are plagued with rust and foliar disease. They both have early maturity dates.

III. OBJECTIVE:

To develop and release a variety and or/a variety of big bluestem adapted to the area south of the adapted range of the Commercial varieties of big bluestem.

IV. PROCEDURE:

A. Assembly:

Thirteen southern accessions of big bluestem were collected by District Conservationists and Plant Science Specialists.

B. Initial Evaluations:

1. Location: The assembly is located on the James E. "Bud" Smith Plant Materials Center, B-Block, Row 69-86, Tier 8.

2. Soils: Miles fine sandy loam, well drained and nearly level.

3. Planting Plan:

a. Date of Establishment: May 2, 1967.

b. Plot Design: Single row, non-replicated plots, 20 feet in length and 40 inch centers. A guard row was planted on the outside so that all readings were taken from an inside row.

c. Establishment: A single row seeder with disc openers was used to obtain uniform depth of planting. The seeding rate varied according to seed quality.

d. Standard: 'Kaw' big bluestem was used as the standard for comparison. 'Pawnee' was included and normally does not do well at this southern latitudes. 'Champ' big bluestem was also included in the planting even though it is considered as a cross between Andropogon gerardi Vitman and Andropogon hallii and has a distinctly different growth habit.

4. Management:

a. Seed Bed Preparation: A clean, firm seed bed was prepared by disking and harrowing. The field had been clean fallowed three years prior to planting.

b. Weed Control: Weeds that appeared in the plots were controlled by cultivation and hand weeding.

- c. Fertilization: Soil pH averages 8.3 The planting received 40 pounds of available nitrogen and 20 pounds of available phosphorus in the spring of 1970. Potash is not needed in this area.
- d. Irrigation: The assembly was furrow irrigated using gravity flow and gated pipe outlets for row distribution to insure uniform emergence, then applied during severe stress. It is felt that this would not alter final results. Field tests under range conditions will bear out the final results.
- e. Insect Control: There was no evidence of insect damage.

V. RESULTS:

The following tables consists of initial evaluation notes taken from 1967 through 1971. Stand, vigor, leaf production and seed production were ocular ratings from 1 to 9 with 1 best and 9 none. Yield studies were taken from 2.9 feet of row and dry forage weight in grams was recorded.

Andropogon gerardi - Vitman B-block (1967-1968-1969 Notes)

Planting Date (5-2-67)

<u>FMT</u>	<u>Origin</u>
11423	'Champ'
1243	Whitesboro, Texas
1244	Decatur, Texas
1245	Denton, Texas
1246	Gainesville, Texas
1247	New Boston, Texas
1248	Sulphur Springs, Texas
1249	Bryan, Texas

<u>FMT</u>	<u>Origin</u>
11424	'Pawnee'
11429	Gatesville, Texas
11430	Temple, Texas
11431	Temple, Texas
667	Clarksville, Texas
671	Oenaville, Georgia
1141	Franklin Co., Arkansas
11479	'Kaw'

<u>FMT</u>	<u>Stand/1</u>			<u>Seed/2</u> <u>Vigor</u>	<u>Leaf Prod./4</u>			<u>Seed Prod./5</u>			<u>Lateral</u> <u>Spread</u>		<u>Maturity</u> <u>Date</u>
	'67	'68	'69		'67	'68	'69	'67	'68	'69	'68	'69	
11423	1	1	1	3	3	3	3	5	5	5	3	3	9-13-15
1243	3	3	3	5	7	7	7	7	7	7	5	5	10-1
1244	1	1	1	3	3	3	3	5	7	7	3	3	10-1
1245	1	1	1	3	3	1	3	3	7	7	3	3	10-10
1246	7	7	7	5	7	5	5	7	5	7	3	3	10-10
1247	7	7	7	5	5	1	1	5	7	5	5	5	10-10
1248	5	5	5	5	7	5	7	7	5	5	3	3	10-10
1249	7	7	7	7	5	7	7	9	7	7	5	7	10-10
11424	1	1	3	3	3	3	7	5	7	7	5	7	9-15
11429	3	3	3	5	7	5	5	9	5	5	5	5	10-1
11430	5	5	5	5	5	7	7	9	9	7	5	7	10-1
11431	7	9	9	7	7	7	9	9	9	9	-	-	- -
667	3	3	9	5	5	5	9	9	5	9	-	-	- -
671	3	3	3	5	5	5	5	9	9	7	5	5	10-15
1141	3	3	3	5	3	1	3	5	3	5	3	5	9-13
11479	1	1	1	1	3	3	5	3	7	7	5	5	9-13

(1970 Notes)

FMT	Stand/1	Vigor/2	Leaf	Size	Seed	Size	Size	Size/3
	4-22-70::	4-22-70::	Prod/4	/3	Prod/5	/3	/3	
	4-22-70::	4-22-70::	4-22-70::	4-22-70::	10-19-70::	4-22-70::	5-21-70::	10-19-70
11423	3	3	3	3	5	15"	22"	28-23x20
1243	3	5	7	5	7	6"	15"	40-14x36
1244	1	5	3	3	7	6"	20"	40-14x36
1245	1	5	3	3	7	11"	24"	47-12x38
1246	7	5	3	3	7	8"	18"	34-10x33
1247	7	7	1	5	7	8"	-	47-10x43
1248	5	5	7	3	5	8"	18"	47-12x29
1249								
11424	1	5	7	7	7	8"	20"	30-6x24
11429	3	5	5	5	5	9"	20"	54-12x40
11430	5	7	7	7	7	8"	18"	40-16x34
11431	Gone							
667	3	3	5	5	5	8"	16"	47-17x38
671	5	5	5	3	7	8"	19"	44-12x36
1141	3	3	3	5	5	13"	24"	55-20x40
11479	1	5	5	5	7	8"	16"	51-20x40

(1971 Notes)

FMT	Emerg. Date:	Stand	Vigor	Leaf	Spread	Seed Prod/5	Size/3	Size/3	Size/3	Size/3
		/1	/2	Prod/4	/3		4-12-71:	5-24-71:	6-24-71:	10-15-71
		5-24-71:	4-12-71:	4-12-71:	4-12-71:		4-12-71:	5-24-71:	6-24-71:	10-15-71
11423	3-2-71	1	3	5	3	7	5"	20x18	18x24	43-18x22
1243	3-2-71	3	5	7	5	7	3"	12x20	14x22	47-16x22
1244	3-2-71	3	5	7	5	7	5"	15x18	15x24	41-16x24
1245	3-2-71	1	5	3	5	5	7"	18x20	19x30	43-18x24
1246	3-2-71	7	3	3	5	5	4"	14x20	13x22	44-10x24
1247	3-2-71	7	1	3	5	3	10"	15x18	16x24	50-17x19
1248	3-2-71	5	3	3	5	5	6"	13x18	18x22	48-18x20
1249	3-2-71	5	3	3	5	3	5"	15x20	17x24	34-16x22
11424	3-2-71	1	1	3	5	7	6"	14x18	13x23	36-10x19
11429	3-2-71	3	1	3	5	5	5"	15x15	15x22	48-14x32
11430	3-2-71	5	3	5	5	1	4"	14x18	12x20	43-18x24
11431	Died out									
667	3-2-71	3	1	5	5	3	10"	14x15	14x18	49-15x20
671	3-9-71	3	7	7	5	5	3"	11x14	14x18	49-18x20
1141	3-2-71	3	1	3	5	1	10"	23x24	24x30	50-24x21
11479	3-2-71	1	5	3	5	7	6"	17x20	19x20	57-20x24

SUMMARY

Andropogon gerardi - Vitman
16 accessions - B-Block 1968-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance Rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/5</u>
11423	'Champ'	72	14.4	1	1.13	4
1243	Whitesboro, Texas	120	24.0	10	0.69	12
1244	Decatur, Texas	86	17.2	3	0.93	8
1245	Denton, Texas	74	14.8	2	1.21	3
1246	Gainesville, Texas	116	23.2	9	0.89	9
1247	New Boston, Texas	106	21.2	8	1.24	2
1248	Sulphur Springs, Texas	106	21.2	8	0.78	11
1249*	Bryan, Texas	101	20.2	7	0.60	14
11424	'Pawnee'	94	18.8	5	0.98	7
11429	Gatesville, Texas	91	18.2	4	1.00	6
11430	Temple, Texas	128	25.6	11	0.80	10
11431						
667	Clarksville, Texas	100	20.0	6	1.04	5
671	Oenaville, Georgia	116	23.2	9	0.67	13
11441	Franklin Co., Arkansas	74	14.8	2	2.04	1
11479**	'Kaw'	86	17.2	3	1.00	6

* Only 4 years data.

** 3830 pounds dry forage yield per acre.

PMT-11441 - Franklin County, Arkansas

Had the top performance both in forage yield and ocular evaluations of stand, vigor, leaf production and seed production.

PMT-1245 - Denton, Texas

Rated second in ocular evaluations and third in forage yield.

PMT-11423 - 'Champ'

Rated forth in forage production and first in ocular evaluation due to being a poor seed producer.

- /1 Performance rating - Ocular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1967 - 1971 with 1 = best, 9 = none.
- /2 Average/yr. - Total performance rating divided by 5.
- /3 Rank - 1-13 with 1 as best, performance rating.
- /4 Percent of air dry forage yield of PMT 11479.
- /5 Rank - Rated 1-14 with 1 best, forage yield.

Sporobolus airoides Torr.
alkali sacaton

I. INTRODUCTION:

Alkali sacaton Sporobolus airoides Torr. is a native, warm season perennial bunch grass. It is adapted to moderately saline meadows and valleys in South Dakota and Missouri to eastern Washington, South to Texas, southern California and Mexico.

II. PROBLEM:

Alkali sacaton is an important forage grass in Texas and Oklahoma Land Resource areas 42, 77, 78, 80, 81, and 82. There are no named varieties of alkali sacaton available on the commercial market.

PMT-155 from Dell City, Texas, PMT-326 from Falfurrias, Texas and PMT-1733 from Sayre, Oklahoma were increased at the J. E. "Bud" Smith PMC. These three accessions showed promise from an earlier evaluation. PMT-155 alkali sacaton was found to be hard to establish. PMT-326 is a robust late maturing strain that would need to be moved south to insure seed production. PMT-1733 from Sayre, Oklahoma is producing limited quantities of seed that is being used in the field. It is being planted on slick spot soil complexes in western Oklahoma.

III. OBJECTIVE:

The objective is to develop and release an adapted variety and/or varieties of alkali sacaton for use in Texas and Oklahoma and to determine the management methods needed to stimulate seed production under irrigation and cultivation.

IV. PROCEDURES:

A. Assembly:

Fifteen field collections of seed from naturally occurring stands were assembled from Texas and Oklahoma, and planted in 1968. More collections were made and planted in 1969 including a replanting of materials planted in 1968. The following performance notes were obtained from the 1968 plantings. Performance notes for the 1969 plantings will be published in the 1972 Annual Report.

B. Initial Evaluation:

1. Location: The assembly is located on the J. E. "Bud" Smith Plant Materials Center, B-Block row 92-109, Tier 10 for the 1968 planting.
2. Soils: Nearly level miles fine sandy loam.
3. Planting Plan:
 - a. Date of establishment May 3, 1968.
 - b. Plot Design: Single row, non-replicated, 20 feet in length spaced on 40" inch centers.

V. RESULTS:

The following tables consist of initial evaluation notes taken from 1968-1971. There are no named varieties to use as a standard of comparison. PMT-1733 from Sayre, Oklahoma was used as the standard for comparison because seed of it is being produced at the Center and used in the field.

Sporobolus airoides - B-Block (1968 Notes)

<u>PMT</u>	<u>Origin</u>	<u>Plant Date</u>	<u>Seedling</u>		
			<u>Stand/1 ::6-3-68</u>	<u>Vigor/2 ::6-25-68</u>	<u>Size/3 ::6-25-68</u>
155	Dell City, Texas	5-3-68	3	3	3x2
207	Lubbock, Texas	5-3-68	7	7	-
228	Dalhart, Texas	5-3-68	5	3	3x3
382	Pecos, Texas	5-3-68	5	3	3x3
326	Kenedy Co., Texas	5-3-68	1	1	5x3
811	Lubbock, Texas	5-3-68	7	7	-
1731	Jackson Co., Okla.	5-3-68	3	3	3x3
1732	Jackson Co., Okla.	5-3-68	5	3	3x3
1733	Sayre, Okla.	5-3-68	3	3	3x3
1734	Harper Co., Okla.	5-3-68	3	3	3x3
1735	Comanche Co., Okla.	5-3-68	5	3	3x3
1736	Woodward Co., Okla.	5-3-68	1	3	3x3
1737	Harper Co., Okla.	5-3-68	3	3	3x3
1738	Blaine Co., Okla.	5-3-68	3	3	3x3
1739	Harper Co., Okla.	5-3-68	5	3	2x2

(1969 Notes)

<u>PMT</u>	<u>ORIGIN</u>	<u>Leaf</u>		<u>Seed</u>	<u>Measurement</u>	<u>Regrowth/6</u>	<u>%</u>
		<u>Stand/1</u>	<u>Prod/4</u>		<u>Size/3</u>		
		<u>7-9-69:::</u>	<u>7-9-69:::</u>	<u>Prod/5:::</u>	<u>8-10-69</u>	<u>:::11-14-69</u>	<u>:::Clip/7</u>
155	Dell City, Texas	3	1	7	39-9x38	1	1.21
207	Lubbock, Texas	7	7	1	31-7x18	-	-
228	Dalhart, Texas	3	5	7	36-8x18	1	.57
382	Pecos, Texas	3	3	5	48-9x24	1	1.14
326	Kenedy Co., Texas	1	1	7	45-10x32	1	1.71
811	Lubbock, Texas	7	5	5	36-10x15	3	-
1731	Jackson Co., Okla.	3	5	5	32-8x20	3	1.34
1732	Jackson Co., Okla.	7	7	7	- - -	-	-
1733	Sayre, Okla.	3	3	7	34-8x22	3	1.0
1734	Harper Co., Okla.	3	5	7	28-5x15	3	.65
1735	Comanche Co., Okla.	5	5	3	34-6x21	3	1.42
1736	Woodward Co., Okla.	3	7	7	25-7x16	3	1.20
1737	Harper Co., Okla.	3	5	7	24-6x20	3	1.42
1738	Blaine Co., Okla.	3	5	7	34-6x20	3	1.35
1739	Harper Co., Okla.	3	5	5	27-5x18	3	1.22

Sporobolus airoides - B-Block (1970 Notes)

PMT	Stand/1	Leaf	Seed	Vigor/2	4/3	Size/3	Size/3	Size/3	Seed	% Clip/7
		Prod/4	Prod/5		Height				Prod/5	
	7-8-70	7-8-70	7-8-70	4-20-70	4-20-70	5-21-70	7-8-70	10-20-70	10-20-70	
155	3	3	3	3	8"	36-23x36	51-12x45	56-16x45	3	1.28
207	3	7	7	3	-	35-16x30	35-12x31	35-12x31	7	.64
228	3	5	5	3	-	30-18x24	37-10x40	43-12x40	7	.57
382	3	3	5	3	10"	30-22x24	50-16x48	46-16x36	7	1.14
326*	1	1	9	1	12"	24x30	36-16x34	54-20x50	1	2.57
811	5	7	5	7	6"	24-16x30	42-12x34	35-16x35	5	1.42
1731	3	5	3	5	10"	12x24	28-12x25	38-18x30	5	1.14
1732	7	7	5	5	6"	30-16x24	38-12x36	45-16x40	5	--
1733**	3	3	5	5	8"	30-18x30	38-12x32	40-16x35	5	1.0
1734	3	7	7	5	8"	16x24	27-8x33	38-16x40	7	.50
1735	1	5	5	3	8"	30-14x28	38-9x37	45-16x50	3	1.0
1736	3	7	7	5	6"	14x20	27-9x30	34-16x40	7	.42
1737	3	5	7	3	8"	26-16x30	28-10x32	35-16x41	7	.64
1738	3	5	7	1	12"	24x20	31-9x36	46-16x43	7	.71
1739	3	5	5	3	8"	16x18	- -	40-16x40	5	.57

* 326 does not mature at Knox City - Judged by number of seed heads.

** Produced 3500 pounds air dry forage.

(1971 Notes)

PMT	Stand/1	Height /3	Height /3	Leaf Prod/4	Vigor/2	Seed Prod/5	Size/3	Size/3	Size/3	Seed Prod/5	%/7 Clip
	4-9-71	3-9-71	4-19-71	6-24-71	6-24-71	8-10-71	5-20-71	6-24-71	9-2-71	10-10	10-12
155	3	3"	12"	3	1	3	18x36	30-18x36	50-20x40	3	.83
207	7	3"	10"	7	5	7	20x30	30-14x30	36-18x30	3	--
228	3	4"	12"	7	5	3	11x25	30-11x25	36-10x18	3	.54
382	3	3"	12"	3	5	5	16x30	40-19x35	42-20x36	7	.75
326*	3	3"	12"	3	1	-	20x30	26x40	50-40x40	5	1.83
811*	3	2"	6"	3	7	1	16x30	30-18x30	36-20x30	7	1.41
1731	3	3"	10"	7	5	3	12x24	28-12x25	38-20x30	5	.62
1732	7	3"	10"	7	5	5	12x25	36-14x25	46-20x40	5	--
1733**	1	4"	12"	3	3	3	12x25	30-12x25	32-20x30	5	1.0
1734	3	3"	8"	7	7	5	14x25	28-14x30	40-20x36	5	.25
1735	3	3"	10"	7	3	5	16x25	30-18x30	30-16x30	3	.75
1736	3	1"	6"	7	7	7	10x20	26-12x23	30-16x30	7	.25
1737*	3	3"	10"	7	5	7	12x22	28-12x25	30-16x30	7	.41
1738	3	3"	14"	7	3	7	12x28	42-14x30	36-12x30	7	.45
1739	3	3"	10"	7	7	7	10x20	24-11x24	36-12x28	7	.33

* Seed ready 6-24-71. No second seed crop.

** Produced 6000 pounds air dry forage.

/1 Rating 1-9 with 1 excellent and 9 none, occular estimate.

/2 Rating 1-9 with 1 excellent and 9 none, occular estimate.

/3 Measurement - example - 30-12x31

30 = height; 12 = leaf height; 31 = plant at 12" height.

/4 Rating 1-9 with 1 excellent and 9 none, occular estimate.

/5 Rating 1-9 with 1 excellent and 9 none, judged by the number culms.

/6 Rating 1-9 with 1 excellent and 9 none, occular estimate.

/7 Percent of air dry forage yield compared to PMT-1733.

SUMMARY

Sporobolus airoides - alkali sacaton 15 accessions - B-Block 1968-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance Rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/6</u>
155	Dell City, Texas	46	11	2	1.05	4
207	Lubbock, Texas				0.51	12
228	Dalhart, Texas	68	17	6	0.55	11
382	Pecos, Texas	64	16	5	0.96	6
326	Kenedy Co., Texas	36	9	1	2.00	1
811	Lubbock, Texas	84	21	10	1.55	2
1731	Jackson Co., Okla.	66	17	6	1.26	3
1732	Jackson Co., Okla.					
1733*	Sayre, Okla.	58	14	3	1.00	5
1734	Harper Co., Okla.	80	20	9	0.42	13
1735	Comanche Co., Okla.	62	15	4	0.86	7
1736	Woodward Co., Okla.	84	21	10	0.55	11
1737	Harper Co., Okla.	78	20	9	0.65	9
1738	Blaine Co., Okla.	74	18	7	0.76	8
1739	Harper Co., Okla.	76	19	8	0.63	10

* 4330 dry forage yield per acre.

PMT-326 - Kenedy Co., Texas

Rated first in seedling vigor, stand, leaf production, and formation of seed heads although it has a hard time trying to make seed at Knox City. It is cut off by frost on normal years. Forage yield was 2.00 times that of PMT-1733 used as a standard for comparison. PMT-326 holds some green in the winter months.

PMT-155 - Dell City, Texas

Rated 2nd. in the group for seedling vigor, stand, leaf production and seed production. Forage yield was 1.05 times that of PMT-1733 used as a standard for comparison.

PMT-1733 - Sayre, Oklahoma

Rated third in stand, seedling vigor, leaf production and seed production. Forage yield rated as 1.00 and it was used as the standard for comparison.

PMT-811 - Lubbock, Texas

Rated high in forage production, 1.55 times that of PMT-1733 but it rated 10th in seedling vigor, leaf production and seed production.

- 1 Performance rating - 4 years of notes 1968 - 1971. Ratings were ocular on stand, seedling vigor, leaf production and seed production with ratings - 1-9; 1-best; 9-none.
- 2 Rank - 1-10 with 1 best and 10 the lowest rating for ocular estimate.
- 3 Forage yield - average yield for 3 year period, dry weight.
- 4 % yield - Using PMT-1733 as a standard and rated as 1.00.
- 5 Rank - Rated 1-13 with 1 best for forage yield.

Calamovilfa gigantea (Nutt.) Scribn. and Merr.
big sandreed grass

I. INTRODUCTION:

Big sandreed grass Calamovilfa gigantea (Nutt.) Scribn. and Merr. is a native warm-season, perennial grass that spreads by strong creeping rhizomes. It is adapted to sand dunes and can be found growing from Kansas to Utah, Texas and Arizona. Culms are solitary ranging from 1.5 to two meters tall.

II. PROBLEM:

Big sandreed grass has a potential for use on deep sandy soils in Texas and Oklahoma (Land Resource areas 42, 77 and 78). There are no commercial varieties available on the market. Native stands of big sandreed grass produce very few seed. If a good seed producing variety could be developed it would be used extensively on sandy areas of Texas and Oklahoma.

III. OBJECTIVE:

To develop and release a variety and/or varieties of big sandreed grass for use in Western Oklahoma and Texas.

IV. PROCEDURE:

A. Assembly:

Six accessions of big sandreed grass were collected in northern Texas and western Oklahoma by District Conservationists and plant science specialists. The collection sites were selected to represent major big sandreed grass plant communities.

B. Initial Evaluation:

1. Location: The assembly is located on the James E. "Bud" Smith Plant Materials Center, B-Block row 108-115, Tier 10.
2. Soils: Miles fine sandy loam, well drained and nearly level.
3. Planting Plan:
 - a. Date of Establishment: May 3, 1968
 - b. Plot Design: Single row, non-replicated plots, 20 feet in length spaced on 40 inch centers.
 - c. Establishment: Five accessions, PMT-1667, 1668, 1669, 1670 and PMT-1671 were hand planted using a single row planter with disc openers to secure uniform depth of planting. PMT-704 was vegetatively transplanted.
 - d. Standards: There is no commercial variety of big sandreed grass available on the market, therefore all accessions were checked against each other.

4. Management:

- a. Seed Bed Preparation: A clean, firm seed bed was prepared by disking and harrowing. The field had been clean fallowed 3 years prior to planting.
- b. Weed Control: The field was weed free following 3 years of fallow; however, weeds were controlled by cultivation and hand weeding as necessary.
- c. Fertilization: Soil pH averages 8.3. The planting received 40 pounds of available nitrogen and 20 pounds of available phosphorous in the spring of 1970. Tests have shown that potash is not needed in this locality.

- d. Irrigation: The assembly was furrow irrigated using gravity flow and gated pipe outlets for row distribution to insure uniform emergence, then irrigation water was applied during severe stress. It is felt that this would not alter final results of the trials. Field tests under range conditions will bear out the final results.

V. RESULTS:

Performance notes on initial evaluation of big sandreed grass are tabulated by year in the following tables. A summary of results obtained follows:

Calamovilfa gigantea - B-Block (1969 & 1968 Notes)

<u>PMT</u>	<u>Origin</u>	<u>Date Planted</u>	<u>PMT</u>	<u>Origin</u>	<u>Date Planted</u>
1667	Freedom, Oklahoma	5-3-68	1670	Cherokee, Oklahoma	5-3-68
1668	Freedom, Oklahoma	5-3-68	1671	Texas Co., Oklahoma	5-3-68
1669	Beaver, Oklahoma	5-3-68	704 *	Canadian, Texas	5-3-68

* Only one plant survived.

<u>Stand</u> <u>/1</u>	<u>Vigor</u> <u>/2</u>	<u>size</u> <u>/3</u>	<u>Leaf</u> <u>Prod/4</u>	<u>Size</u> <u>/3</u>	<u>Size</u> <u>/3</u>	<u>Seed</u> <u>Prod/5</u>	<u>Stand</u> <u>/1</u>	<u>Rhizome</u> <u>Prod/9</u>	<u>Clip</u> <u>/7</u>
<u>6-3-68::</u>	<u>6-25-68::</u>	<u>6-25-68::</u>	<u>7-9-69::</u>	<u>7-9-69::</u>	<u>8-10-69::</u>	<u>8-10-69::</u>	<u>8-10-69::</u>	<u>8-10-69::</u>	<u>8-29-69</u>
1	3	4x3	5	14x26	16x20	9	3	5	4000
1	3	4x3	5	65-33x33	60-40x72	7	3	5	4000
5	3	4x3	5	60-30x33	66-40x12	7	3	5	2500
1	3	4x3	5	72-30x35	80-40x47	5	3	3	3200
1	3	5x3	3	60-28x30	75-36x36	5	1	3	8000
			7	72-36x38	86-37x40	7	3	5	

(1970 Notes)

<u>PMT</u>	<u>Stand</u> <u>/1</u>	<u>Vigor</u> <u>/2</u>	<u>Leaf</u> <u>Prod/4</u>	<u>Rhizome</u> <u>Prod/9</u>	<u>Seed</u> <u>Prod/5</u>	<u>Size</u> <u>/3</u>	<u>Size</u> <u>/3</u>	<u>Boot</u>	<u>Maturity</u>	<u>Disease</u> <u>/8</u>	<u>Clip</u> <u>/7</u>
	<u>7-8-70::</u>	<u>7-8-70::</u>	<u>7-8-70::</u>	<u>7-8-70::</u>	<u>8-10-70::</u>	<u>5-21-70::</u>	<u>7-8-70::</u>	<u>Date::</u>	<u>Date</u>	<u>::10-70::</u>	<u>10-70</u>
1667	3	5	5	3	7	18x16	38-18x28	5-21	9-1		3000
1668	1	5	3	3	5	24x16	75-20x49	6-1			5750
1669	3	5	7	7	7	23x30	75-21x45	6-1	10-15		3500
1670	3	5	7	3	7	30x30	85-22x40	6-1	10-15	rust	3250
1671	1	3	5	3	5	18x30	75-20x30	6-1	11-1		6000
704	3	3	3	3	5	24x30	80-20x24	6-1	10-15		

(1971 Notes)

	Stand <u>/1</u>	Vigor <u>/2</u>	Leaf Prod/ <u>4</u>	Seed Prod/ <u>5</u>	Rhizome Prod/ <u>9</u>	Size <u>/3</u>	Size <u>/3</u>	Size <u>/3</u>	Size <u>/3</u>	Clip <u>/7</u>
<u>FMT</u>	<u>4-9-71</u>	<u>6-24-71</u>	<u>6-24-71</u>	<u>10-15-71</u>	<u>6-24-71</u>	<u>4-20-71</u>	<u>5-15-71</u>	<u>6-24-71</u>	<u>10-15-71</u>	<u>10-13</u>
1667	3	3	7	5	7	12"	30x40	60-30x40	60-30x40	7250
1668	3	3	7	5	7	15"	15x30	54-30x40	64-32x40	5500
1669	3	5	7	5	7	16"	20x30	60-30x40	72-32x40	3500
1670	3	5	7	5	7	18"	20x30	60-30x30	72-33x40	3500
1671	3	3	3	5	5	14"	30x40	60-34x40	80-34x40	10250
704	3	1	3	5	5	14"	30x40	70-35x40	85-36x40	16250

/1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/3 Measurement - example - 30-12x31 -
30 = height; 12 = leaf height; 31 = plant at 12" height.

/4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/5 Rating 1-9 with 1 excellent and 9 none, judged by number culms.

/6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/7 Dry forage weight in grams. 2.9 ft. row clipped.

/8 Rust as indicated.

/9 Ability to produce rhizomes. Rating 1-9 with 1 excellent and 9 none.

SUMMARY

Calamovilfa gigantea - big sandreed grass
6 accessions - B-Block 1968-1972

<u>FMT</u>	<u>Origin</u>	<u>Performance</u> <u>Rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>%</u> <u>Yield/4</u>	<u>Rank/5</u>
1667	Freedom, Okla.	74	18.5	5	0.58	4
1668	Freedom, Okla.	66	16.5	3	0.62	3
1669	Beaver, Okla.	84	21.0	6	0.39	6
1670	Cherokee, Okla.	72	18.0	4	0.41	5
1671	Texas Co., Okla.	52	13.0	1	1.00	2
704	Canadian, Texas	34*	17.0	2	2.00	1

* 2 years data - 1 plant on row.

SUMMARY Cont'd

PMT-1671 - Texas Co., Oklahoma

Ratings were based on rate of spread and dry forage yield. PMT-1671 rated high in seed production compared to the other five accessions; however, it is still a poor seeder due to sparse culms.

PMT-704 - Canadian, Texas

PMT-704 rated number 2 in performance. It was transplanted to the rod row area vegetatively and was not evaluated in 1968 and 1969.

Evaluations taken in 1970 and 1971 were accumulated and average points per year were used in the final analysis.

- /1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1968 - 1971 with 1 = best; and 9 = none. Summary data was determined by the total number of points divided by the number of years of data.
- /2 Average/yr. - Total performance rating divided by 4.
- /3 Rank - 1-6 with 1 as best determined from performance ratings.
- /4 Percent of PMT-1671 used as a standard.
- /5 Rank - Rated 1-4 with 1 best determined from yield data.

Sorghastrum nutans (L.) Nash.
indiangrass

I. INTRODUCTION:

Indiangrass Sorghastrum nutans (L.) Nash. is a warm season perennial bunchgrass with a deep fibrous root system. It develops large bunches by short scaly rhizomes. It is widely distributed throughout the temperate United States from Manitoba south to Florida, Arizona and Mexico.

II. PROBLEM:

There is a need for an adapted variety of indiagrass for range seeding, beautification, and prairie restoration in Texas south of the adapted range of Cheyenne indiagrass. Cheyenne indiagrass was developed at Woodward, Oklahoma and matures about September 15. A later maturing variety of indiagrass is needed for land resource areas 42, 81, 83, 84 in south central and western Texas.

III. OBJECTIVES:

The object is to develop and release cooperatively an adapted variety and/or varieties of indiagrass for use in the area south of the adapted range of 'Cheyenne' indian-grass.

IV. PROCEDURES:

A. Assembly:

Twenty-one field collections were made from naturally occurring areas of indian-grass in Texas and southern Oklahoma. 'Cheyenne', 'Osage', Llano', 'Tejos' and five other selections being worked with by other agencies were included.

B. Initial Evaluations:

1. Location: The assembly is located on the J. E. "Bud" Smith Plant Materials Center, B-block, rows 108-115, Tier 11 and rows 91-115, Tier 12.
2. Soils: Miles fine sandy loam.
3. Planting Plan:
 - a. Date of establishment: May 3, 1968
 - b. Plot design: Single row, non-replicated plots, 20 feet in length, spaced on 40 inch centers.
 - c. Establishment: The assembly was hand planted using a single row planter equipped with disc openers to insure uniform depth control.
 - d. Standard: The standard of comparison for this assembly is 'Cheyenne' indiagrass.
4. Management:
 - a. Seed Bed Preparation: A clean, firm seed bed was prepared by listing the field and allowing it to settle over winter. The top of the beds were harrowed off just prior to planting.
 - b. Weed Control: The land was clean fallowed three years prior to planting. Hand weeding was used to control weed encroachment.
 - c. Fertilization: A light application of #30 pounds of available 33% nitrogen was applied in the spring of 1970.

- d. Irrigation: Limited furrow irrigation was used to establish the planting.
- e. Insect Control: There was no evidence of insect damage recorded on the assembly.

V. RESULTS:

The following tables resulted from plant performance notes taken from 1968-1971. They are followed by a summary of notes and point out the accessions in the assembly that have the greatest potential. PMT-802 from Lampasses, Texas has been increased for field production. All of the better accessions in the assembly have been vegetatively moved to the advanced observation block for further study and will be reported on at a later date.

Sorghastrum nutans B-Block (1968 & 1969) Notes indiangrass Planting Date (5-3-68)

<u>PMT</u>	<u>Origin</u>			<u>PMT</u>	<u>Origin</u>			<u>PMT</u>	<u>Origin</u>
875	'Cheyenne'			1721	Atoka, Okla			1727	Pontotoc, Okla.
1713	Durant, Okla.			809	Renner			1728	Bryan Co., Okla.
1714	Waurika, Okla.			1144	'Llano'			1729	Ardmore, Okla.
1715	McAlister, Okla.			1801	'Osage'			1730	Stephen Co., Okla.
1716	McAlister, Okla.			802	Lampasses, Texas			1324	Waurika, Okla.
1717	Hughes Co., Okla.			1722	Eldorado, Kansas			1325	San Antonio, Texas
1718	Ardmore, Okla.			1723	Waurika, Okla.			1463	KSU #1
1719	Grady Co., Okla.			1724	Stephens Co., Okla.			1464	KSU #2
1071	OSU			1725	Atoka, Okla.			1465	KSU #3
1720	Hughes Co., Okla.			1726	Grady Co., Okla.				
<u>PMT</u>	<u>Stand</u> <u>/1</u>	<u>Vigor</u> <u>/2</u>	<u>Size</u> <u>/3</u>	<u>Stand</u> <u>/1</u>	<u>Leaf</u> <u>Prod/4</u>	<u>Rhizome</u> <u>Prod/9</u>	<u>Seed</u> <u>Prod/5</u>	<u>Maturity</u> <u>Date</u>	<u>/7</u> <u>Clip %</u>
<u>PMT</u>	6-3-68::	6-3-68::	6-25-68::	7-9-69::	9-15-69::	11-14-69::	1969::	1969	::
875	1	1	5x4	1	5	5	5	10-20	1.00*
1713	9	7	1x1	7	5	5	5	11-10	.66
1714	5	5	3x3	5	3	3	7	11-15	.77
1715	5	7	2x1	5	7	5	7	11-10	.55
1716	3	7	2x2	3	5	5	7	11-15	.66
1717	5	7	1x1	5	7	7	7	11-14	.09
1718	7	3	5x3	5	3	3	5	11-14	.77
1719	3	3	5x3	3	3	3	9	11-1	1.05
1071	3	3	4x3	3	3	3	3	11-10	1.33
1720	7	7	2x1	5	7	5	7	11-10	.27
1721	5	5	3x2	5	5	5	5	11-10	.77
809	7	7	2x1	5	7	5	3	11-10	.94
1144	9	7	1x1	7	5	1	3	10-10	1.11
1801	1	3	5x4	1	5	5	7	10-15	.55
802	1	3	5x4	1	1	5	1	11-15	1.27
1722	9	-	-	5	7	9	9	10-20	-
1723	1	3	4x3	1	7	5	3	11-1	.89
1724	5	5	3x3	1	5	5	5	11-1	1.16
1725	1	5	3x3	3	5	5	5	11-1	.72
1726	3	5	3x2	3	3	5	9	11-1	.72
1727	3	5	3x2	3	5	5	7	11-10	.66
1728	1	3	5x3	1	5	5	5	11-1	.83
1729	3	5	3x2	3	5	5	5	11-1	.66
1730	3	5	3x2	3	3	5	7	11-1	.61
1324	7	7	2x2	3	5	5	3	10-20	.77
1325	3	5	3x3	3	5	3	3	11-1	.16
1463	9	9	1x1	7	5	5	7	10-20	-
1464	5	7	2x2	5	7	7	9	10-20	.11
1465	3	7	2x2	3	7	9	9	10-20	.22

* 4500# dry forage yield per acre.

Sorghastrum nutans B-Block (1970 & 1971) Notes
indiangrass

PMT	Stand	Vigor	Leaf	Seed	Size	%	Stand	Vigor	Leaf	Seed	Size	%
	<u>/1</u>	<u>/2</u>	Prod/4	Prod/5	<u>/3</u>		<u>/1</u>	<u>/2</u>	Prod/4	Prod/5	<u>/3</u>	
	1970	1970	1970	1970	10-20-70		1971	1971	10-20-71	1971	10-20-71	
	Clip/7						Clip/7					
875	1	5	5	5	48-16x37	1.0	1	5	5	5	50-18x36	1.0*
1713	7	5	7	7	59-12x36	1.37	7	5	7	7	60-18x36	.85
1714	5	5	3	5	56-12x40	1.0	5	5	3	5	50-18x36	1.3
1715	5	5	5	7	59-16x40	1.12	5	3	5	7	55-20x24	1.04
1716	3	5	7	7	60-12x43	1.12	3	5	5	7	50-18x30	1.2
1717	5	5	5	5	58-16x40	2.12	5	3	7	5	50-20x30	1.9
1718	5	5	5	5	60-16x39	1.0	5	5	5	5	52-18x30	1.0
1719	1	3	5	7	60-16x40	1.25	1	5	3	7	40-24x30	.95
1071	1	3	3	5	57-16x34	1.50	1	3	3	5	50-20x30	.90
1720	5	7	7	7	55-20x38	.75	5	7	7	7	48-16x16	.66
1721	1	5	3	3	60-16x36	2.0	1	5	3	3	60-20x30	1.19
809	3	3	7	3	68-20x40	2.25	3	7	7	3	62-20x30	.81
1144	5	5	5	5	55-16x42	2.12	5	7	7	5	55-16x30	.66
1801	1	5	7	7	50-12x36	.87	1	7	7	7	45-16x30	.47
802	1	3	1	1	60-16x48	3.0	1	3	3	3	62-30x36	2.1
1722	5	5	5	7	50-12x40		5	3	3	7	52-18x20	
1723	1	3	3	5	60-20x43	2.37	1	5	3	3	50-20x30	2.0
1724	1	3	3	7	54-20x42	1.37	1	5	3	7	55-26x30	1.2
1725	3	5	3	7	62-20x42	1.0	3	3	7	7	56-20x36	.76
1726	1	5	7	7	56-16x48	1.25	1	5	7	7	50-18x36	.85
1727	1	5	3	7	58-16x38	1.12	1	5	7	7	55-20x36	.52
1728	1	5	1	7	59-16x44	1.62	1	5	7	3	50-25x36	1.1
1729	3	5	1	7	55-12x40	1.37	3	7	3	7	56-20x36	.81
1730	3	5	3	7	43-12x43	1.87	3	7	7	7	48-20x30	.76
1324	3	5	3	3	58-16x43	1.87	3	5	3	3	40-26x30	1.7
1325	3	5	5	7	50-12x43	1.75	3	5	3	7	48-30x36	1.6
1463	7	7	5	7	40-26x36		7	7	3	7	40-26x36	
1464	5	5	5	7	40-12x36	1.0	5	7	7	7	40-14x22	.33
1465	3	5	5	7	45-12x40	.87	3	5	7	7	40-16x30	.33

* 2000# dry forage yield per acre for 1970.

** 5250# dry forage yield per acre for 1971.

/1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/3 Measurement - example - 30-12x31 -
30 = height; 12 = leaf height; 31 = plant at 12" height.

/4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/5 Rating 1-9 with 1 excellent and 9 none, judged by number culms.

/6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.

/7 Dry forage weight in grams. 2.9 ft. row clipped.

/8 No disease.

/9 Ability to produce rhizomes. Rating 1-9 with 1 excellent and 9 none.

SUMMARY

Sorghastrum nutans - indiangrass
29 accessions - B-block 1968-1971

PMT	Origin	Performance		Rank/3	Yield/4	Rank/5
		Rating/1	Ave./yr./2			
875	'Cheyenne'	50	12.5	4	1.0 *	13
1713	Durant, Okla.	90	22.5	20	0.87	16
1714	Waurika, Okla.	64	16.0	11	1.06	10
1715	McAllister, Okla.	78	19.5	17	0.87	16
1716	McAllister, Okla.	72	18.0	15	1.01	12
1717	Hughes Co., Okla.	78	19.5	16	1.30	4
1718	Ardmore, Okla.	66	16.5	12	0.97	14
1719	Grady Co., Okla.	56	14.0	7	1.02	11
1071	OSU	42	10.5	2	1.19	7
1720	Hughes Co., Okla.	90	22.5	20	0.53	21

SUMMARY (con't)

Sorghastrum nutans - indiangrass
29 accessions B-block 1968-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance Rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/5</u>
1721	Atoka, Okla.	54	13.5	6	1.19	7
809	Renner	70	17.5	14	1.16	8
1144	'Llano'	76	19.0	16	1.08	9
1801	'Osage'	64	16.0	11	0.58	20
802	Lampassas, Texas	28	7.0	1	1.90	1
1722	Eldorado, Kansas					
1723	Waurika, Okla.	44	11.0	3	1.60	3
1724	Stephens Co., Okla.	56	14.0	7	1.20	6
1725	Atoka, Okla.	62	15.5	10	0.78	18
1726	Grady Co., Okla.	68	17.0	13	0.86	17
1727	Pontotoc, Okla.	64	16.0	11	0.68	19
1728	Bryan Co., Okla.	50	12.5	5	1.08	9
1729	Ardmore, Okla.	62	15.5	10	0.86	17
1730	Stephens Co., Okla.	68	17.0	13	0.89	15
1324	Waurika, Okla.	58	14.5	8	1.38	5
1325	San Antonio, Texas	60	15.0	9	1.70	2
1463	KSU #1	92	23.0	20		
1464	KSU #2	88	22.0	19	0.36	23
1465	KSU #3	80	20.0	18	0.38	22

* 3916 pounds of air dry forage yield per acre.

PMT-802 - Lampassas, Texas

Rated first in stand, seedling vigor, leaf production and seed production. Forage yield was 1.90 times that of 'Cheyenne' indiangrass used as a standard for comparison. PMT-802 is about 1 month later than 'Cheyenne' indiangrass for maturity.

PMT-1071 - OSU

Rated 2nd. in stand, seedling vigor, leaf production, and seed production. It ranked 7th. in forage yield. The 3 year average was 1.19 times that of 'Cheyenne'. The maturity date is the same as 'Cheyenne'.

PMT-1723 - Waurika, Oklahoma

Rated 3rd. in stand, seedling vigor, leaf production and seed production. It rated 3rd. in forage yield with 1.60 times that of 'Cheyenne' indiangrass. Maturity was about the same as 'Cheyenne'.

PMT-1463 -

KSU#1 rated 2nd. in forage yield with 1.70 times that of 'Cheyenne'. The maturity date was the same as 'Cheyenne'. PMT-1463 rated 9th. for seedling vigor, stand, leaf production and seed production.

- /1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1968-1971 with 1=best; 9=none.
- /2 Average/yr. - Total performance rating divided by 4.
- /3 Rank - 1-20 with 1 as best for performance rating.
- /4 Percent of PMT-875 used as a standard
- /5 Rank - Rated 1-23 with 1 best for yield comparisons.

Tripsacum dactyloides (L.) L.
eastern gamagrass

I. INTRODUCTION:

Eastern gamagrass Tripsacum dactyloides (L.) L. is a tall grass. It forms large clumps, with thick knotty rhizomes. Hitchcock lists it as found growing in swales and moist places, Massachusetts to Michigan, Iowa and Nebraska, south to Florida, Oklahoma and Texas; West Indies.

II. PROBLEM:

There are no named varieties of eastern gamagrass for the southwestern United States. 'Boligee' was developed and used in the southeastern states. Seed are large and it produces few viable seed. A leafy, seed producing variety of eastern gamagrass is needed for land resource areas 84, 85, 86, 87, 133 and 150 in Texas and Oklahoma.

III. OBJECTIVES:

The object is to obtain a high forage yield and seed producing variety and/or varieties of eastern gamagrass for use in Texas and Oklahoma.

IV. PROCEDURE:

A. Assembly:

Fifty-one field collections were assembled from Oklahoma and Texas and other Plant Materials Centers at Manhattan, Kansas and Americus, Georgia. The collection sites were selected where eastern gamagrass had been an important part of the plant community.

B. Initial Evaluations:

1. Location: The assembly is located on the J. E. "Bud" Smith Plant Materials Center, B-Block, Row 105-115, Tier 13, Row 91-115, Tier 14 and 15.
2. Soils: Miles fine sandy loam, nearly level.
3. Planting Plan:
 - a. Date of Establishment: March 6, 1968
 - b. Plot Design: Single row, non-replicated plots, 20 feet in length spaced on 40 inch centers. The outside rows were duplicated so that all readings were obtained from an inside row.
 - c. Establishment: The assembly was hand planted using a planter with disk openers to insure a uniform $\frac{1}{2}$ inch depth of planting.
 - d. Standard: PMT-1213 eastern gamagrass received from the Americus, Georgia Plant Materials Center was believed to be 'Boligee' and was used as a standard for comparison. It was later learned that the accession was not 'Boligee'. All comparisons are based on PMT-1213 rather than change three years data to select a new standard.
4. Management:
 - a. Seed Bed Preparation: A clean, firm seed bed was prepared by disking and harrowing.
 - b. Weed Control: To control weeds during establishment, the field was clean tilled three years prior to planting. The plots were hand weeded to control weeds in succeeding years.

- c. Fertilization: A light application of nitrogen $33\frac{1}{2}$ percent (30 pounds of available) was applied in 1970.
- d. Irrigation: The assembly was irrigated to insure uniform emergence during establishment. The assembly was then only irrigated during extreme dry periods. Water was applied with gated pipe using furrow irrigation.
- e. Insect Control: There was no evidence of insect damage recorded on the assembly.

V. RESULTS:

Performance notes on stand, vigor, leaf production and seed production were obtained from 1968-1971. Ratings were made using a numbering system with 1 best and 9 very weak. Summaries were obtained by adding the total points and dividing by the number of years observed. Low numbers indicated superior accessions. Numbers were then ranked with number one in rank being the superior accession and allows the assembly to be ranked from 1-9 with several accessions having the same rank.

Clipping studies were done by clipping 2.9 feet of row and recording the dry weight in grams at the end of the growing season. PMT-1213 was used as the standard for comparison and rated as 1.00 on forage. The dry weight in grams clipped were totaled for 1969-1971 and recorded as a percent based on the yield obtained from PMT-1213. Yields were then ranked with 1 as the most yield and 29 as the least yield in forage weight.

A combination of forage yield and performance note ratings revealed the following:

PMT-832	San Marcos, Texas	Ranked 1
PMT-829	Rosenberg, Texas	Ranked 2
PMT-1609	Chandler, Oklahoma	Ranked 3
PMT-1618	Bryan Co., Oklahoma	Ranked 3
PMT-1599	Bryan Co., Oklahoma	Ranked 4
PMT-1612	Ada, Oklahoma	Ranked 5
PMT-1591	Ardmore, Oklahoma	Ranked 6
PMT-1607	Mayes Co., Oklahoma	Ranked 6
PMT-1615	Noble Co., Oklahoma	Ranked 7
PMT-1617	Grant Co., Oklahoma	Ranked 8
PMT-1588	Nowata, Oklahoma	Ranked 9
PMT-1598	Bryan Co., Oklahoma	Ranked 9

Tripsacum dactyloides - eastern gamagrass

(1968 & 1969) Notes

PMT	Origin	Planting Date	Stand	Vigor	Leaf	Spread	Seed	Size	/7 % Clip
			/1 1968	/2 1968	Prod/4 8-10-69	/9 9-15-69	Prod/5 9-15-69	/3 8-10-69	
823	Clarksville, Texas	3-6-68	1	3	5	5	5	40-9x24	.62
824	Clarksville, Texas	3-6-68	1	3	7	7	7	40-8x30	.87
825	Sulphur Springs, Texas	3-6-68	1	3	7	7	5	30-7x40	.87
826	Crosbyton, Texas	3-6-68	1	3	7	7	9	- 10x20	.87
827	Lufkin, Texas	3-6-68	1	3	3	3	5	24-7x20	.68
828	Groesbeck, Texas	3-6-68	1	3	5	5	7	40-12x30	.87
829	Rosenberg, Texas	3-6-68	1	3	3	3	5	36-7x30	1.25
830	Liberty, Texas	3-5-68	1	3	3	3	7	40-8x28	1.0
831	Waxahatchie, Texas	3-5-68	1	3	5	5	7	8x32	1.18
832	San Marcos, Texas	3-5-68	1	3	3	3	5	56-7x32	2.12
833	Waco, Texas	3-5-68	1	-	3	5	5	60-32x60	1.0
1213	Georgia PMC	3-5-68	1	3	5	5	7	40-7x30	1.0*
1466	Kansas PMC	3-5-68	1	3	5	5	7	54-8x32	1.06
1588	Nowata, Okla.	3-4-68	1	3	5	5	7	50-8x32	.87
1589	Nowata, Okla.	3-4-68	5	7	-	-	-	40-16x30	-
1590	Nowata, Okla.	3-4-68	1	3	5	5	9	7x32	.87
1591	Ardmore, Okla.	3-4-68	3	3	5	5	9	48-6x30	1.18
1592	Ardmore, Okla.	-	-	-	-	-	-	-	-
1593	Adaire Co., Okla.	3-4-68	-	-	-	-	-	-	-
1594	Woodward, Okla.	3-4-68	NG	-	-	-	-	-	-
1598	Bryan Co., Okla.	3-4-68	5	5	5	7	9	36-7x36	.75
1599	Bryan Co., Okla.	3-4-68	3	5	7	7	9	34-18x26	.43
1600	Pawhusa, Okla.	3-4-68	3	3	5	7	9	-	.62
1602	Blaine Co., Okla.	3-4-68	5	5	7	7	9	8x20	.62
1603	Okmulgee, Okla.	3-4-68	3	5	7	7	9	7x20	.43
1604	Okmulgee, Okla.	3-4-68	NG	-	-	-	-	-	-
1605	Okmulgee, Okla.	3-4-68	3	3	7	7	9	8x22	.62
1606	Mayes Co., Okla.	3-4-68	5	5	7	7	9	7x20	-
1607	Mayes Co., Okla.	3-4-68	3	3	3	3	5	44-8x24	1.25
1608	Mayes Co., Okla.	3-4-68	NG	-	-	-	-	-	-
1609	Chandler, Okla.	3-4-68	5	3	3	3	5	-	1.25
1610	Chandler, Okla.	3-4-68	7	3	3	3	9	48-7x30	-
1611	Chandler, Okla.	3-4-68	NG	-	-	-	-	-	-
1612	Ada, Okla.	3-4-68	3	3	3	3	7	40-7x24	1.12
1613	Ada, Okla.	3-4-68	7	5	7	5	9	36-6x24	-
1614	Rush Springs, Okla.	3-4-68	7	5	7	7	9	36-7x20	.18
1615	Noble Co., Okla.	3-4-68	5	5	3	5	9	40-6x28	.68
1616	Noble Co., Okla.	3-4-68	7	3	3	3	9	48-9x24	1.25
1617	Grant Co., Okla.	3-4-68	3	3	3	3	7	40-8x24	.81
1618	Wagoner Co., Okla.	3-4-68	7	5	3	3	5	44-7x28	.81
1619	Wagoner Co., Okla.	3-4-68	7	5	5	5	9	- -	-
1620	Wagoner Co., Okla.	3-4-68	5	5	7	7	9	- 7x20	.93
1621	Talihina, Okla.	3-4-68	5	5	5	5	9	- 7x20	-
1622	Talihina, Okla.	3-4-68	7	5	5	7	9	- 7x24	-
1623	Texas Co., Okla.	3-4-68	3	3	3	5	9	40-16x36	1.12
1624	Texas Co., Okla.	3-4-68	3	5	3	7	7	38-9x20	1.06
1625	Miami, Okla.	3-4-68	7	5	9	9	9	- 8x24	-
1626	Miami, Okla.	3-4-68	7	3	7	7	9	28-8x24	.87
1627	Leflore Co., Okla.	3-4-68	3	3	7	5	9	40-7x24	.87
1805	Miss. PMC	3-4-68	9	9	3	5	9	34-8x30	-
1806	Miss. PMC	3-4-68	7	7	-	-	9	38-7x32	1.87

* 1213# air dry forage yield per acre.

Tripsacum dactyloides - eastern gamagrass

(1970 & 1971) Notes

PMT	Stand /1 1970	Vigor /2 1970	Leaf Prod/4 1970	Seed Prod/5 1970	Size /3 5-21-70	Matur- ity Date	% Clip /7	Stand /1 1971	Vigor /2 1971	Leaf Prod/4 1971	Seed Prod/5 1971	Size /3 6-24-71	Matur- ity Date	% Clip /7
823	3	3	3	7	44-20x15	8-15	1.20	3	3	3	7	42-16x40	6-24	1.83
824	3	3	3	5	30-12x36	8-15	.90	3	5	7	5	50-24x40	6-24	1.66
825	3	3	3	9	- 17x40	-	1.20	3	5	3	7	42-24x30	6-24	1.33
826	3	3	5	7	36-12x36	8-15	1.20	3	3	7	7	40-20x40	6-24	2.66
827	3	3	3	7	30-12x30	8-15	1.00	3	3	7	7	50-24x40	6-24	2.00
828	3	3	3	7	40-12x30	8-15	1.50	3	5	5	9	50-26x40	-	1.83
829	3	1	1	7	40-16x30	8-15	1.50	1	1	3	7	42-28x40	8-15	3.66
830	3	5	7	7	42-12x20	8-15	.70	3	5	5	7	40-24x40	7-15	1.33
831	3	3	3	-	48-16x30	8-15	1.20	1	5	7	7	52-24x30	6-1	3.16
832	3	1	3	5	48-16x36	7-10	1.60	1	5	3	5	52-26x40	7-15	3.16
833	3	5	3	7	36-16x32	8-15	1.20*	1	5	7	5	52-25x40	8-1	3.00**
1213	3	5	3	7	- 18x2	-	1.00	3	5	7	7	48-24x40	7-15	1.00
1466	3	3	3	7	44-16x27	8-15	1.00	1	7	7	1	46-20x30	8-1	1.33
1588	3	5	3	7	44-20x30	8-15	2.00	1	5	3	7	52-28x40	8-1	2.16
1589	-	-	-	-	-	-	.80	7	5	7	7	30-30x30	6-24	-
1590	3	3	3	5	42-16x36	8-15	1.20	1	3	7	7	42-18x30	6-1	1.83
1591	3	3	3	7	44-20x36	8-15	1.90	3	1	3	7	50-28x40	6-24	2.33
1592	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1593	-	-	-	-	-	-	-	7	7	7	7	50-28x40	6-24	-
1594	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1598	3	3	3	7	40-18x36	8-15	2.20	5	3	3	7	40-22x30	8-1	2.33
1599	3	5	7	7	34-18x26	8-15	1.20	3	5	7	7	36-18x30	8-1	1.66
1600	3	3	3	9	36-17x34	-	1.60	3	5	3	7	48-24x40	8-1	2.33
1602	3	3	3	9	40-16x36	8-15	1.40	5	5	7	7	42-18x40	10-20	2.66
1603	3	5	7	7	36-16x32	8-15	1.10	7	5	7	7	38-16x30	6-24	2.33
1604	3	-	-	-	-	-	-	-	-	-	-	-	-	-
1605	3	5	7	7	40-16x30	8-15	1.00	3	5	3	7	42-20x40	6-24	2.33
1606	3	5	7	7	36-12x32	8-15	.60	5	5	7	7	42-18x40	9-3	-
1607	3	1	3	5	50-20x39	8-15	1.40	3	5	7	7	40-16x20	8-1	2.66
1608	3	-	-	-	-	-	-	-	-	-	-	-	-	-
1609	3	1	3	7	48-20x44	8-15	1.40	3	5	7	7	50-20x40	6-24	3.16
1610	3	3	3	7	48-20x44	8-15	1.80	7	5	7	7	50-20x40	6-24	5.66
1611	3	-	-	-	-	-	-	-	-	-	-	-	-	1.66
1612	3	3	3	7	48-20x35	8-15	1.50	3	3	7	7	50-26x40	6-24	2.83
1613	3	5	5	7	38-16x36	8-15	1.40	7	5	7	7	40-20x30	6-24	3.00
1614	3	3	3	7	48-16x36	8-15	1.90	7	7	7	7	42-18x30	6-24	4.00
1615	3	3	3	7	44-16x46	8-15	1.60	5	3	3	7	50-30x40	6-24	3.00
1616	3	3	3	7	48-9x24	8-15	1.60	7	5	7	7	48-32x40	8-1	1.33
1617	3	3	3	7	42-16x40	8-15	1.50	3	7	7	7	46-24x40	8-15	2.50
1618	3	3	3	7	40-16x42	8-15	.70	7	3	7	5	60-25x40	8-1	4.33
1619	3	1	3	7	36-12x36	8-15	.80	7	3	3	7	46-24x40	8-1	2.50
1620	3	5	7	7	19-12x36	8-15	1.0	5	5	7	7	40-16x30	8-1	2.66
1621	3	5	7	7	19-12x24	8-15	1.20	5	1	3	7	36-28x30	9-1	2.83
1622	3	3	3	7	40-16x30	8-15	1.00	7	5	3	7	40-28x40	7-1	-
1623	3	5	7	7	40-16x36	6-15	.80	3	5	7	7	42-20x40	6-24	2.66
1624	3	5	7	7	36-16x35	8-15	.80	3	5	7	7	42-18x40	8-1	2.33
1625	3	3	3	9	- 11x36	-	-	7	7	7	7	42-18x30	8-1	-
1626	3	5	7	7	27-17x30	8-15	1.40	NG	-	-	-	-	-	-
1627	-	-	-	-	-	-	.80	7	5	7	7	56-18x40	8-1	2.50
1805	3	3	3	7	34-8x30	8-15	1.90	7	7	7	7	50-20x20	7-1	-
1806	-	-	-	-	-	-	-	7	1	3	5	60-40x40	8-1	5.33

No disease recorded.

* 2500# air dry forage yield per acre.

** 1500# air dry forage yield per acre.

- /1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /3 Measurement - example - 30-12x31 -
30= height; 12 = leaf height; 31 = plant at 12" height.
- /4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /5 Rating 1-9 with 1 excellent and 9 none, judged by number culms.
- /6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /7 Dry forage weight in grams. 2.9 ft. row clipped.
- /8 No disease recorded.
- /9 Spread is amount of tillering, ocular estimate.

SUMMARY

Tripsacum dactyloides - eastern gamagrass 51 accessions - B-block 1968-1971

<u>PMT</u>	<u>Origin</u>	<u>Performance rating/1</u>	<u>Ave/yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/5</u>	<u>Final Rank/6</u>
823	Clarksville, Texas	51	13	3	1.21	25	15
824	Clarksville, Texas	69	17	7	1.14	26	18
825	Sulphur Springs, Texas	59	15	5	1.13	27	17
826	Crosbyton, Texas	65	16	6	1.57	15	10
827	Lufkin, Texas	51	13	3	1.22	24	14
828	Groesbeck, Texas	59	15	5	1.40	19	12
829	Rosenberg, Texas	39	10	1	2.13	3	2
830	Liberty, Texas	59	15	5	1.01	28	18
831	Waxahatchie, Texas	-	-	-	-	-	-
832	San Marcos, Texas	41	10	1	2.29	2	1
833	Waco, Texas	-	-	-	1.73	11	-
1213	Georgia PMC	61	15	5	1.00	29	19
1466	Kansas, PMC	53	12	2	1.13	27	16
1588	Nowata, Oklahoma	55	14	3	1.67	14	9
1589	Nowata, Oklahoma	-	-	-	-	-	-
1590	Nowata, Oklahoma	55	14	4	1.30	23	14
1591	Ardmore, Oklahoma	55	14	4	1.80	8	6
1592	Ardmore, Oklahoma	-	-	-	-	-	-
1593	Adaire Co., Oklahoma	-	-	-	-	-	-
1594	Woodward, Okla.	-	-	-	-	-	-
1598	Bryan Co., Oklahoma	65	17	7	1.76	10	9
1599	Bryan Co., Oklahoma	75	19	9	3.29	1	4
1600	Pawhuska, Oklahoma	63	16	6	1.51	18	12
1602	Blaine Co., Oklahoma	75	19	9	-	-	-
1603	Oklmulgee, Oklahoma	79	20	10	1.25	23	18
1604	Oklmulgee, Oklahoma	-	-	-	-	-	-
1605	Oklmulgee, Oklahoma	69	17	7	1.31	21	15
1606	Mayes Co., Oklahoma	-	-	-	-	-	-
1607	Mayes Co., Oklahoma	51	13	3	1.77	9	6
1608	Mayes Co., Oklahoma	-	-	-	-	-	-
1609	Chandler, Oklahoma	55	14	4	1.93	5	3
1610	Chandler, Oklahoma	67	17	7	-	-	-
1611	Chandler, Oklahoma	-	-	-	-	-	-
1612	Ada, Oklahoma	55	14	4	1.81	7	5
1613	Ada, Oklahoma	79	20	10	-	-	-
1614	Rush Springs, Oklahoma	79	20	10	1.69	12	11
1615	Noble Co., Oklahoma	61	15	5	1.76	10	7
1616	Noble Co., Oklahoma	67	17	7	-	-	-
1617	Grant Co., Oklahoma	59	15	5	1.75	11	8
1618	Wagoner Co., Oklahoma	61	15	5	1.94	4	3

Tripsacum dactyloides - eastern gamagrass - SUMMARY cont'd

<u>PMT</u>	<u>Origin</u>	<u>Performance rating/1</u>	<u>Ave./yr./2</u>	<u>Rank/3</u>	<u>% Yield/4</u>	<u>Rank/5</u>	<u>Rank/6</u>
1619	Wagoner Co., Oklahoma	65	17	7	-	-	-
1620	Wagoner Co., Oklahoma	79	20	10	1.53	16	13
1621	Talihina, Oklahoma	67	17	7	-	-	-
1622	Talihina, Oklahoma	71	18	8	-	-	-
1623	Texas Co., Oklahoma	67	17	7	1.52	17	12
1624	Texas Co., Oklahoma	69	18	8	1.39	20	15
1625	Miami, Oklahoma	85	21	11	-	-	-
1626	Miami, Oklahoma	83	20	10	-	-	-
1627	Leflore Co., Oklahoma	-	-	-	-	-	-
1805	Miss. PMC	79	20	10	-	-	-
1806	Miss. PMC	-	-	-	-	-	-

/1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1 - 9 scale from 1968 - 1971 with 1 = best; 9 = none.

/2 Average/yr. - Total performance rating divided by 4.

/3 Rank - 1-11 with 1 as best for performance rating.

/4 Percent of PMT-1213 used as a standard.

/5 Rated 1-29 with 1 best for yield comparisons.

/6 Final Rank 1-11 with 1 best - yield rank plus performance rank.

Andropogon scoparius Michx.
little bluestem

I. INTRODUCTION:

Little bluestem Andropogon scoparius Michx. is a perennial warm season bunchgrass with a deep fibrous root system. It is widely distributed throughout the native short grass region.

II. PROBLEM:

Little bluestem is native to all of Texas and Oklahoma Land Resource area's 76 through 151. It is valued as a range grass and could be used for critical area stabilization especially in the more arid parts of the two states. There are no recommended varieties of little bluestem available for use in this area. 'Pastura' little bluestem was developed at Los Lunas, New Mexico and is an early, short growing type. 'Western' little bluestem was developed and released at Manhattan, Kansas. It is a short type and has an early maturity date.

'Henrietta' little bluestem is commercially available in limited quantities. It is harvested from native range near Henrietta, Texas.

III. OBJECTIVE:

The objective is to develop and release an adapted variety and/or varieties of little bluestem for use in Texas and Oklahoma.

IV. PROCEDURES:

A. Assembly:

Seventeen accessions of little bluestem were field collected in Texas and planted as an assembly in 1967. Twenty-two accessions were field collected from Oklahoma and planted as an assembly in 1968.

B. Initial Evaluation:

1. Location: The 1967 assembly is located on the James E. "Bud" Smith Plant Materials Center, B-Block Tier 9, Row 69-86, Tier 10, row 69-77.

The 1968 assembly is located on the James E. "Bud" Smith Plant Materials Center, B-Block, Tier 8, Row 108-112, Tier 9, Row 92-112.

2. Soils: Miles fine sandy loam, nearly level.

3. Planting Plan:

- a. Date of Establishment: 5-2-67 and 5-3-68.

- b. Plot design: Single row, non-replicated, 20 feet in length, spaced 40" centers. Standards were inter-mixed at random.

- c. Establishment: The assembly was hand planted with a push type planter with disk openers to insure uniform depth of planting. Seeding rates were adjusted according to seed quality.

- d. Standards: 'Pastura' little bluestem
'Western' little bluestem
'Henrietta' little bluestem

4. Management:

- a. Seed Bed Preparation: A clean firm seedbed was prepared by disking and harrowing.

- b. Weed Control: The land was clean fallowed three years to control weeds. Weeds that got into the plots after establishment were hand weeded and cultivated as needed to maintain control.
- c. Fertilization: A light application of Nitrogen 30 pounds of available 33% N was applied in the spring of 1970.
- d. Irrigation: The assembly was irrigated using furrow irrigation and gated aluminum pipe for distribution. Only limited amounts were applied.
- e. Insect Control: There was no evidence of insect damage recorded on the assembly.

V. RESULTS:

All ratings were recorded on SCS-56 Plant Performance notes. Rating characteristics were all ocular estimates considering 1 as excellent, 3(good), 5(fair), 7(poor), 9(very weak). Winter injury, disease and insect infestations were recorded considering 1(0-20%) injury, 3(20-40%) injury, 5(40-60%) injury, 7(60-80%) injury, 9(80-100%) injury. Forage clippings were made at maturity with 2.9 ft. of row clipped. Both green and air dry weights were recorded. Only the air dry forage weight is recorded on the attached summaries.



Te-10963-7 Observational area of little bluestems collections from Texas and Oklahoma.

Andropogon scoparius Michx.
little bluestem
B-block(1967-1968-1969-1970-1971 Notes)

Planting Date
(5-2-67)

PMT	Origin	PMT	Origin	PMT	Origin
592	'Pastura'	1236	Mertzon, Texas	591	Henrietta, Texas
687	Marlin, Texas	1237	San Antonio, Texas	592	'Pastura'
688	Waco, Texas	1238	Waurika, Texas	1432	Gatesville, Texas
689	'Aldous'	1239	Nacogdoches, Texas	1433	Gatesville, Texas
1232	Bryan, Texas	1240	Bay City, Texas	1434	Temple, Texas
1233	Bryan, Texas	1331	Coffeeville, Miss.	1435	Temple, Texas
1234	Whitesboro, Texas	1332	Coffeeville, Miss.	1460	'Morton'
1235	Clarksville, Texas				

PMT	Stand/1					Vigor/2					Leaf Prod./4					Seed Prod./5					/8	Maturity Date
	'67	'68	'69	'70	'71	'67	'68	'69	'70	'71	'67	'68	'69	'70	'71	'67	'68	'69	'70	'71	Disease	
592	1	1	1	1	1	3			3	5	5	5	5	5	5	3	3	3	3	3	1	9-15
687	5	5	5	5	5	3			5	5	3	3	3	5	5	5	5	5	5	3	1	10-1
688	3	3	3	3	1	3			5	5	3	3	3	5	3	3	3	3	3	7	1	10-1
689	1	1	1	1	1	3			3	3	3	3	3	3	7	5	9	9	7	7	1	9-15
1232	3	7	7	7	5	5			5	7	5	3	3	3	5	5	3	3	3	7	1	10-1
1233	7	7	7	7	5	7			5	5	5	3	3	3	5	7	3	3	3	3	1	10-1
1234	5	5	5	5	5	5			5	5	5	5	5	5	7	5	3	3	3	5	1	9-13
1235	7	7	7	7	7	7			7	7	7	7	7	7	7	7	7	7	7	7	1	10-1
1236	3	3	3	3	1	3			5	5	3	3	3	3	3	3	3	3	3	3	5-rust	10-1
1237	-	-	-	-	-	-	NG															
1238	7	7	7	7	7	7			5	5	5	5	3	3	3	3	3	3	3	3	1	11-1
1239	7	-	-	-	7	7			-	5	-	-	-	-	7	-	-	-	5	3	*	-
1240	7	7	7	7	3	7			7	5	5	5	5	5	3	5	-	5	5	3	1	10-10
1331	3	3	3	3	5	5			5	7	5	7	7	7	5	5	7	7	7	5	**	10-10
1332	3	3	3	3	5	5			5	7	5	5	5	5	5	5	7	7	7	3	***	10-15
591	1	1	1	1	1	3			3	3	3	3	3	3	3	3	3	7	5	5	1	9-15
592	-	-	-	3	1	-			5	5	-	-	-	5	5	-	-	-	-	-	3-rust	-
1432	5	5	5	5	3	5			5	5	5	3	5	5	3	3	5	5	5	3	*	10-1
1433	3	3	3	3	3	3			5	5	5	3	5	5	7	3	5	7	5	5	*	10-10
1434	5	5	5	5	3	5			5	5	5	3	3	3	5	3	5	5	3	3	*	10-1
1435	5	5	5	5	3	3			5	5	5	5	5	5	5	5	5	5	5	3	1	9-20
1460	3	3	3	3	3	3			3	3	5	5	3	3	5	3	3	3	3	3	1-rust	9-15

* Center of crowns dead
** 1/3 winter killed
*** 1/2 winter killed

PMT	7-28-67	Measurement/3 11-17-67	5-15-68	Measurement/3 8-13-68	11-13-69	Measurement/3 10-19-70	10-15-71	% Clip /7
592	9x9	30-10x11	11x11	28-12x12	30-12x12	25-14x30	24-11x14	1.0*
687	5x6	30-10x15	12x13	35-16x16	40-18x17	44-14x22	45-14x14	1.02
688	7x8	37-11x13	16x15	38-17x17	38-16x15	40-12x26	45-14x19	1.3
689	9x9	32-10x14	13x20	32-13x20	32-16x19	30-12x21	34-14x20	.82
1232	3x4	26-6x9	11x13	35-14x15	35-13x17	36-12x22	44-14x19	.98
1233	4x5	26-7x11	10x11	34-16x18	36-15x18	38-16x30	50-15x18	1.14
1234	6x6	28-9x10	12x10	36-13x12	25-11x15	32-16x30	40-16x18	.78
1235	5x5	25-7x8	10x10	36-11x13	36-11x12	31-14x15	30-14x14	.54
1236	8x8	35-11x9	12x10	36-16x13	41-17x12	27-10x21	50-16x16	1.52
1237	4 plts.							
1238	No plts.							
1239	Few plts.							
1240	4x4	23-5x11	7x10	30-15x23	35-16x11	36-12x30	50-16x25	1.38
1331	5x5	30-5x9	10x11	30-12x16	27-12x13	36-12x28	48-14x21	1.04
1332	5x4	32-7x11	10x12	35-13x17	34-12x14	36-13x21	45-12x20	1.16
591	8x9	30-9x10	14x15	37-18x17	36-18x18	34-12x34	40-13x20	1.20
592	8x8	30-10x11	10x10	29-11x12	29-12x12	20-12x12	24-11x19	1.18
1432	6x7	32-9x11	12x12	40-16x13	40-14x14	38-14x29	52-14x18	1.28
1433	7x7	30-9x11	12x13	35-14x14	36-18x16	43-12x21	42-14x20	8.2
1434	5x8	30-4x9	11x11	36-13x15	45-12x14	31-12x23	56-14x20	1.04
1435	7x8	31-8x10	11x10	41-13x14	41-15x13	33-12x29	52-12x18	1.0
1460	6x8	30-9x9	12x12	33-12x14	30-12x12	30-16x29	34-17x32	1.0

* PMT-592 Averaged 4160# pounds of air dry forage per acre during 1969, 1970, 1971.

- /1 Rating 1-9 with 1 excellent and 9 none, ocular estimate, disease excluded.
- /2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /3 Measurement - example - 30-12x31 -
30= height; 12 = leaf height; 31 = plant at 12" height.
- /4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /5 Rating 1-9 with 1 excellent and 9 none, judged by number of culms.
- /6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /7 Dry forage weight in grams. 2.9 ft. row clipped.
- /8 Rust as indicated.

SUMMARY

Andropogon scoparius - Little bluestem
22 accessions - B-Block 1967-1971

PMT	Origin	Performance Rating/1	Ave./yr./2	Rank/3	% Yield/4	Rank/5
592	*'Pastura'	56	11.2	2	1.00**	10
687	Marlin, Texas	80	16.0	8	1.02	9
688	Waco, Texas	62	12.4	4	1.30	3
689	'Aldous'	70	14.0	5	0.82	12
1232	Bryan, Texas	86	17.2	11	0.98	11
1233	Bryan, Texas	88	17.6	12	1.14	7
1234	Whitesboro, Texas	86	17.2	11	0.78	13
1235	Clarksville, Texas	126	25.2	16	0.54	14
1236	Mertzon, Texas	56	11.2	2	1.52	1
1237	San Antonio, Texas	-	-	-	-	-
1238	Waurika, Okla.	83	16.6	9		
1239	Nacogdoches, Texas					
1240	Bay City, Texas	91	18.2	14	1.38	2
1331	Coffeetown, Miss.	96	19.2	15	1.04	8
1332	Coffeetown, Miss.	90	18.0	13	1.16	6
591	'Henrietta'	52	10.4	1	1.20	5
592	'Pastura'					
1432	Gatesville, Texas	80	16.0	8	1.28	4
1433	Gatesville, Texas	78	15.6	7	0.82	12
1434	Temple, Texas	76	15.2	6	1.04	8
1435	Temple, Texas	84	16.8	10	1.00	10
1460	'Western'	60	12.0	3	1.00	10

* PMT-592 'Pastura' used as standard.

** 4160# dry weight forage yield/acre.

PMT-591 - Henrietta, Texas

Rated highest in seedling vigor, stand, seed production, leaf production but only clipped 1.2 percent of PMT-592 'Pastura' little bluestem. Had a bad rust problem in one row and matures early.

PMT-1236 - Mertzon, Texas

Rated second best in stand, leaf production, seed production and seedling vigor. It produced 1.52 times more forage over the 3 year trial than PMT-592 'Pastura' little bluestem.

PMT-1460 -

'Western' little bluestem rated 3rd on stand, seedling vigor, seed production, and leaf production. Yield was equal to 'Pastura' little bluestem.

- /1 Performance rating - Ocular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1967-1971 with 1=best; 9=none.
- /2 Average/yr. Total performance rating divided by 5.
- /3 Rank - 1-16 with 1 as best.
- /4 Percent of PMT-592 used as a standard.
- /5 Rank - Rated 1-14 with 1 best.

Andropogon scoparius Michx.
little bluestem
 B-Block (1968-1969-1970-1971 Notes)

Planting Date
 (5-3-68)

<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>	<u>PMT</u>	<u>Origin</u>
592	'Pastura'	1640	Holdenville, Okla.	1652	Waurika, Okla.
1634	Ada, Okla.	1641	Rush Springs, Okla.	1653	McAlister, Okla.
1635	Durant, Okla.	1642	Rush Springs, Okla.	1654	Hinton, Okla.
1636	Ardmore, Okla.	1643	Holdenville, Okla.	1655	Durant, Okla.
1637	Mangum, Okla.	1644	Duncan, Okla.	1656	Sentinel, Okla.
689	'Aldous' - KG-158	1645	Duncan, Okla.	1657	Ada, Okla.
1638	Hinton, Okla.	1646	Ardmore, Okla.	1460	'Western' - K-152
1460	'Western'	1649	Atoka, Okla.	1460	'Western'
592	'Pastura'	1650	Atoka, Okla.		
1639	McAlister, Okla.	1651	Waurika, Okla.		

<u>PMT</u>	<u>Stand/1</u>				<u>Vigor/2</u>				<u>Leaf Prod/4</u>			<u>Seed Prod/5</u>			<u>Disease/8</u>	<u>Date</u>	<u>Maturity</u>
	'68	'69	'70	'71	'68	'69	'70	'71	'69	'70	'71	'69	'70	'71		<u>Spring</u>	
																<u>Emerg.</u>	<u>Date</u>
592	1	1	1	1	3	5	5	5	5	7	3	5	5	3		3-8	9-1
1634	9	7	5	5	5	5	5	5	7	7	7	5	5	5		3-8	9-1
1635	9	7	7	7	5	5	7	5	7	7	7	7	5	5	70% chlorosis	3-8	10-15
1636	9	7	7	7	5	7	7	5	7	7	5	5	5	5	70% chlorosis	3-8	11-1
1637	3	3	3	3	3	5	5	3	5	5	3	5	5	3		3-8	10-15
689	1	3	3	3	1	-	5	7	9	7	7	9	9	7	50% chlorosis	3-2	10-15
1638	3	3	5	3	3	-	5	5	7	5	5	5	5	3	50% chlorosis	3-8	10-15
1460	1	3	5	5	3	-	5	3	7	7	7	5	5	5		3-8	8-15
592	1	1	1	1	3	5	5	5	5	3	3	3	5	3		3-8	7-8
1639	9	9	9	9	-	-	-	-	-	-	-	-	-	-		-	-
1640	9	7	5	5	5	7	5	5	7	7	7	9	7	5	Chlorosis	3-8	9-15
1641	1	3	5	3	1	-	5	1	3	1	7	3	5	3		3-8	9-1
1642	3	3	1	1	3	5	3	5	5	3	3	7	5	5		3-8	10-15
1643	9	7	5	5	5	5	5	5	7	5	3	3	5	5	5% leaf spot	3-8	9-1
1644	5	7	7	7	3	5	5	3	3	7	7	3	1	7		3-8	9-1
1645	5	5	3	3	3	5	5	3	3	3	7	3	1	5		3-8	8-15
1646	9	7	7	7	5	-	7	5	5	7	7	5	5	3		3-8	9-1
1649	9	7	7	7	5	-	5	3	7	7	3	5	7	5		3-8	10-20
1650	7	5	5	5	7	-	5	5	7	5	7	7	3	5		3-8	10-15
1651	3	3	3	3	3	-	3	5	5	5	7	3	5	3		3-8	10-15
1652	3	3	3	3	3	-	3	5	3	5	7	5	5	3		3-8	10-15
1653	9	-	-	7	-	-	7	-	-	-	7	-	-	5	15% rust	3-8	10-15
1654	3	3	3	3	3	-	5	5	5	3	3	5	3	5		3-8	10-20
1655	9	-	7	7	-	-	7	7	3	7	7	3	9	3	10% chlorotic	3-8	10-15
1656	3	5	5	3	3	-	5	3	7	5	3	7	3	5		3-8	9-1
1657	9	-	7	7	7	-	5	5	5	5	3	3	5	7		3-8	10-15
1460	1	-	7	3	3	-	-	7	7	7	7	5	7	7		3-8	9-1
1460	1	1	1	1	3	-	5	3	-	5	3	5	5	3		3-8	9-1

B = Bunch type

Andropogon scoparius Michx.
little bluestem

PMT	7-9-69	Measurement/3	7-8-70	Measurement/3	5-15-71	Measurement/3	%Clip /7
		8-13-69		10-19-70		10-15-71	
592	22-10x14	22-8x13	23-12x16	25-14x30	9x13	24-12x18	1.0 *
1634	--	21-9x15	20-10x22	22-10x30	9x15	36-12x18	.85
1635	10x10	14-10x11	16-9x26	22-10x24	9x15	40-17x21	.95
1636	10x14	27-6x16	21-11x25	22-16x31	7x15	40-20x19	1.41
1637	25-12x18	25-7x17	26-12x22	25-10x21	10x15	30-20x20	1.36
689	10x11	8x13	17-8x22	21-12x23	9-15	40-18x20	1.13
1638	22-10x12	24-8x13	18-10x20	30-10x30	9x15	40-15x18	1.27
1639	No germination						
1460	25-10x12	22-6x15	25-10x14	30-10x22	9x16	28-11x12	1.16
592	25-10x12	24-9x15	31-14x19	30-12x24	9x12	23-13x13	1.0
1460	--	26-7x13	23-11x26	22-10x23	9x16	42-13x20	1.11
1640	27-6x10	26-7x13	26-11x23	22-10x23	9x16	42-13x20	.71
1641	22-8x20	32-8x20	24-14x30	36-12x23	16x18	46-16x24	2.26
1642	14-10x11	29-7x15	26-12x19	30-12x24	16x18	46-16x23	1.13
1643	12-6x10	26-8x13	23-12x19	30-12x21	9x16	40-13x20	1.08
1644	29-14x24	32-7x17	30-12x26	30-10x26	9x15	33-13x19	1.14
1645	32-18x26	36-6x23	28-16x34	28-16x25	9x14	42-15x23	1.66
1646	10-8x8	32-7x17	32-12x17	30-12x21	9x16	50-14x24	.92
1649	27-8x12	26-9x12	27-10x17	35-16x24	9x16	32-14x22	1.66
1650	10x10	25-6x12	25-10x17	27-10x18	14x20	39-13x23	1.66
1651	30-18x21	29-7x16	26-12x20	30-12x25	12x12	38-14x24	1.83
1652	8x24	8x21	21x12	32-18x20	10x16	48-17x29	1.94
1653	-	-	25-9x20	-	9x16	40-14x18	-
1654	27-16x18	32-8x14	22-12x22	22-10x25	12x18	32-8x14	1.50
1655	-	-	-	sick	8x12	34-14x21	-
1656	30-17x22	32-8x18	28-12x22	30-12x22	10x16	40-14x29	2.11
1657	11x12	18-8x13	29-10x17	26-12x18	7x12	28-14x20	2.0
1460	25-12x16	29-11x16	21-12x15	26-12x18	9x12	28-15x15	1.37

* PMT-592 Averaged 3000 pounds air dry forage yield/ acre in '69, '70, '71.

- /1 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /2 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /3 Measurement - example - 30-12x31
30 = height; 12 = leaf height; 31 = plant at 12" height.
- /4 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /5 Rating 1-9 with 1 excellent and 9 none, judged by number of culms.
- /6 Rating 1-9 with 1 excellent and 9 none, ocular estimate.
- /7 Dry forage weight in grams. 2.9 ft. row clipped.
- /8 Estimated % of plant effected by disease.

SUMMARY

Andropogon scoparius - little bluestem
25 accessions - B-block 1968-1971

PMT	Origin	Performance		Rank/3	Yield/5	Rank/6
		Rating/1	Ave./yr./2			
592	'Pastura'	50	12.5	4	1.00*	17
1634	Ada, Okla.	82	20.5	16	0.85	20
1635	Durant, Okla.	90	22.5	18	0.95	18
1636	Ardmore, Okla.	88	22.0	17	1.41	8
1637	Mangum, Okla.	54	13.5	7	1.36	10
689	'Aldous'	71	17.7	11	1.13	14
1638	Hinton, Okla.	57	14.2	8	1.27	11
1460	'Western'	61	15.2	9	1.16	12
592	'Pastura'	44	11.0	2	1.00	17
1639	McAlister, Okla.				1.11	15
1640	Holdenville, Okla.	90	22.5	18	0.71	21
1641	Rush Spring, Okla.	41	10.2	1	2.26	1
1642	Rush Spring, Okla.	52	13.0	6	1.13	14
1643	Holdenville, Okla.	74	18.5	13	1.08	16
1644	Duncan, Okla.	70	17.5	10	1.14	13
1645	Duncan, Okla.	54	13.5	7	1.66	6
1646	Ardmore, Okla.	79	19.7	15	0.92	19
1649	Atoka, Okla.	77	19.2	14	1.66	6
1650	Atoka, Okla.	73	18.2	12	1.66	6
1651	Waurika, Okla.	51	12.7	5	1.83	5
1652	Waurika, Okla.	51	12.7	5	1.94	4
1653	McAlister, Okla.					
1654	Hinton, Okla.	49	12.2	2	1.50	7
1655	Durant, Okla.					
1656	Sentinel, Okla.	57	14.2	8	2.11	2
1657	Ada, Okla.				2.00	3
1460	'Western'	61	15.2	9	1.37	9

* 1.0 = 3000 pounds forage yield/dry weight/acre.

PMT-1641 - Rush Springs, Oklahoma

It had good seedling vigor, good stand and rated high in seed production. Forage yield was 2.26 compared with 'Pastura' little bluestem for the 1969, 1970, and 1971 dry weight yield.

PMT-1656 - Sentinel, Oklahoma

Rated high in seedling vigor and forage yield but only rated average on seed production. Forage yield was 2.11 times that of 'Pastura' for the 3 year average.

PMT-1652 - Waurika, Oklahoma

Has good seedling vigor and better than average seed production. Forage yield was 1.94 percent that of pastura little bluestem.

- /1 Performance rating - Occular observations on seedling vigor, leaf production, stand and seed production were rated on 1-9 scale from 1967-1971 with 1=best; 9=none.
- /2 Average/yr.- Total performance rating divided by 4.
- /3 Rank - 1-18 with 1 as best, performance rating.
- /4 Percent of PMT-1221 used as a standard.
- /5 Rank - Rated 1-21 with 1 best for yield.

Advanced Evaluation Area - 1971

Six assemblies of plants were evaluated in the advanced block during the 1971 growing season. Plants are normally evaluated in the initial evaluation area in large assemblies. The most promising plants are then moved to the advanced evaluation area where a more detailed study of the individual accessions can be made.

Bouteloua curtipendula (Michx.) Torr. sideoats grama

Purpose: Sideoats grama is being evaluated for forage production, disease resistance, ability to produce rhizomes and seed production. Performance notes obtained in the initial evaluation area indicates that there may be a strong correlation between seed production and rhizome development. The bunch type sideoats grama produced an abundance of seed while rhizomatous types were poor to fair seed producers. Twenty-two accessions of sideoats grama are being held in the advanced evaluation area while another large assembly is being evaluated in the initial evaluation area. Results will be reported at the conclusion of the study.

Bouteloua curtipendula (Michx.) Torr. sideoats grama

<u>PMT</u> <u>No.</u>	<u>Origin</u>	<u>Date Planted</u>	<u>Type/planting</u>	<u>Growth type</u>
36	Brackettville, Texas	3-20-68	Vegetative	Rhizomatous
56	Alice, Texas	3-20-68	Vegetative	Rhizomatous
64	Kenedy, Texas	3-20-68	Vegetative	Rhizomatous
95	San Saba, Texas	3-20-68	Vegetative	Rhizomatous
106	Commercial 'Uvalde'	3-20-68	Vegetative	Rhizomatous
174	Mason, Texas	3-20-68	Vegetative	Bunch
184	Llano, Texas	3-20-68	Vegetative	Rhizomatous
198	Memphis, Texas	3-20-68	Vegetative	Rhizomatous
201	Throckmorton, Texas	3-20-68	Vegetative	Rhizomatous
247	Sonora, Texas	3-20-68	Vegetative	Rhizomatous
265	Robert Lee, Texas	3-20-68	Vegetative	Rhizomatous
323	Ingram, Texas	3-20-68	Vegetative	Rhizomatous
328	Van Horn, Texas	3-20-68	Vegetative	Bunch
424	Paducah, Texas	3-20-68	Vegetative	Rhizomatous
463	El Paso, Texas	3-20-68	Vegetative	Rhizomatous
470	Haskell, Texas	3-20-68	Vegetative	Rhizomatous
594	Commercial (Native)	3-20-68	Vegetative	Rhizomatous
696	Commercial 'El Reno'	3-20-68	Vegetative	Rhizomatous
970	Tazewell, Va.	3-20-68	Vegetative	Rhizomatous
971	Ruffner, W. Va.	3-20-68	Vegetative	Rhizomatous
1007	George West, Texas	3-20-68	Vegetative	Rhizomatous
1223	Big Springs, Texas	3-20-68	Vegetative	Rhizomatous

Advanced Evaluation Area - 1971 Cont'd

Panicum virgatum L.
switchgrass

Purpose: Compare seed production, rhizome development and forage production between southern strains of switchgrass.

Nineteen accessions of switchgrass were moved vegetatively from the initial evaluation area in 1967. Stands were poor and had to be re-planted in 1968. Each accession is replicated twice in 20 foot rows. The following accessions are being evaluated, and results will be reported at the conclusion of the study.

Panicum virgatum L.
switchgrass

<u>PMT No.</u>	<u>Origin</u>	<u>Date Planted</u>	<u>Type/Planting</u>
101	Commercial 'Blackwell'	3-19-68	Vegetative
102	Commercial 'Caddo'		
103	Goliad, Texas	3-19-68	Vegetative
131	Goliad, Texas	3-19-68	Vegetative
203	Vernon, Texas	3-19-68	Vegetative
279	Sutherland Springs, Tex.	3-19-68	Vegetative
541	Littlefield, Texas	3-19-68	Vegetative
774	Rosebud, Texas	3-19-68	Vegetative
778	Yoakum, Texas	3-19-68	Vegetative
779	Columbus, Texas	3-19-68	Vegetative
781	Gonzales, Texas	3-19-68	Vegetative
785	Hallettsville, Texas	3-19-68	Vegetative
786	Goliad, Texas	3-19-68	Vegetative
787	George West, Texas	3-19-68	Vegetative
788	George West, Texas.	3-19-68	Vegetative
789	Fairfield, Texas	3-19-68	Vegetative
790	Commercial 'Pangburn'	3-19-68	Vegetative
877	Georgia FMC SC-56-53	3-19-68	Vegetative
878	Georgia FMC SC-56-27	3-19-68	Vegetative

Advanced Evaluation Area - 1971 Cont'd

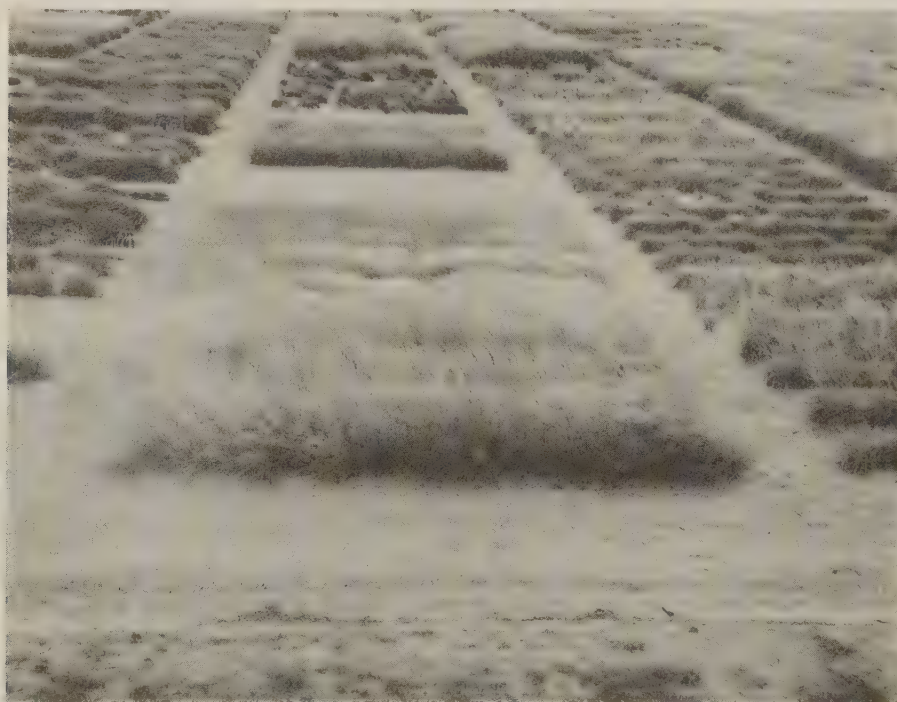
Dichanthium and Andropogon spp.
Introduced bluestems

Purpose: Six introduced bluestems are being evaluated for forage production, seed production, winter hardiness and disease resistance. King Ranch bluestem is being used as the standard for comparison.

Plots were established from seed in May 1970. Three 20 foot rows were established with a guard row on the outside. Performance notes will be published in the 1972 annual report. A list of accessions being evaluated are shown in the table below.

Dichanthium and Andropogon spp.
Introduced bluestems

<u>PMT No.</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Origin</u>
21	Dichanthium annulatum Staff.	Pretoria 90	Transvaal S. Afr.
586	Dichanthium annulatum Staff.	Kleberg bluestem	So. Africa
587	Dichanthium sp.	Old world bluestem	Near East
588	Andropogon caucasicus Trin.	Caucasian bluestem	USSR
694	Dichanthium sp.	Old world bluestem	Near East
873	Bothriochloa ischaemum Keng.	King Ranch bluestem	USSR



Te-7889-11 Introduced bluestems in initial observational area.

Advanced Evaluation Area - 1971, Cont'd

Eragrostis trichodes (Nutt.) Wood.
sand lovegrass

Purpose: To compare forage and seed production between common sand lovegrass and PMT-338 sand lovegrass. Common sand lovegrass is harvested from native stands in Oklahoma and Kansas. It is not well adapted to the southern portion of Texas.

PMT-338 has been evaluated in field plantings from the Rolling Red Plains south in Texas. It has potential for use in range seedings in that area. It was identified by Dr. Frank W. Gould, Curator of the Tracy Herbarium, as Eragrostis trichodes var. piliifera.

The planting was made in May 1970. Five 20 foot rows of each accession were planted with a guard row on the outside of the plot.

Eragrostis trichodes (Nutt.) Wood.
sand lovegrass

<u>PMT</u> <u>No.</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Origin</u>
338	Eragrostis trichodes var. piliifera	sand lovegrass	Mason, Texas
738	Eragrostis trichodes	common sand lovegrass	Commercial

PMT-338 was accepted by the Texas State Seed Board and included in the certification program. It is now a named variety. 'Mason' sandhill lovegrass. The 1 acre planting at the Center will be used as the breeders block.



Te-13136-7 - 3-13-72 - 'Mason' sandhill lovegrass with
7" of new growth.

Advanced Evaluation Area - 1971 Cont'd

Sorghastrum nutans (L.) Nash.
indiangrass

Purpose: Seventeen accessions are being evaluated for forage production, seed production and late maturity.

Cheyenne indiangrass was developed at Woodward, Oklahoma and is being used in range seeding on the Great Plains. It does not do well from the Rolling Red Plains south. A collection of southern strains of indiangrass were evaluated in the initial evaluation area. Seventeen accessions including commercial varieties were transplanted vegetatively to the advanced evaluation area in 1968. Several southern strains matured about one month later than Cheyenne. Any new strain must have higher forage and seed production capabilities than Cheyenne indiangrass. These will be reported on at the conclusion of the study.

Sorghastrum nutans (L.) Nash.
indiangrass

<u>PMT No.</u>	<u>Origin</u>	<u>Dated Planted</u>	<u>Type/planting</u>
113	Giddings, Texas	3-20-68	Vegetative
160	Wheeler, Texas	3-20-68	Vegetative
212	Baird, Texas	3-20-68	Vegetative
335	Hamilton, Texas	3-20-68	Vegetative
433	Merkel, Texas	3-20-68	Vegetative
801	Temple, Texas	3-20-68	Vegetative
802	Lampassas, Texas	3-20-68	Vegetative
803	Lampassas, Texas	3-20-68	Vegetative
805	Fredericksburg, Texas	3-20-68	Vegetative
807	San Marcos, Texas	3-20-68	Vegetative
808	Commercial (Native harvest)	3-20-68	Vegetative
809	TAES	3-20-68	Vegetative
875	'Cheyenne' Commercial	3-20-68	Vegetative
980	Florida PMC F-2546	3-20-68	Vegetative
997	Albany, Georgia	3-20-68	Vegetative
999	Habersham, Georgia	3-20-68	Vegetative
1071	Ahring, Oklahoma	3-20-68	Vegetative
1144	Los Lunas PMC	3-20-68	Vegetative

Agropyron smithii - western wheatgrassA. INTRODUCTION:

Western wheatgrass *Agropyron smithii* Rybd is a native, perennial, cool season, sod forming grass that reproduces by rhizomes and seed. It has a wide range of adaptation and grows on a variety of soils. It does best on low areas of heavy soil. It is nutritious and eaten readily by livestock during its early growing stage. It has potential for use in grassed waterways and in perennial cool season pasture.

B. OBJECTIVE:

Most of the western wheatgrass seed that reach the commercial market is harvested from the high plains of Texas and northward. The native harvests are not well adapted to the southern fringe of the natural area of adaptation of western wheatgrass.

C. PROCEDURE:

Thirty-seven accessions of western wheatgrass were collected from southern locations and planted in the initial evaluation area in 1966. They were moved vegetatively to the advanced observational area on September 28, 1967. The following plant performance notes were taken during the period 1968, 1969, 1970, and 1971.

A-Block - 1968 Notes

FMT	Origin	Date Planted	Survival 11-13-67	Length Rhizomes 1-15-68	Length Rhizomes 4-24-68	Length Rhizomes 10-21-68	Size 4-24-68	(2 counts) Rhizome Count 10-21-68		Rhizome Density
214	Wellington, Texas	9-28-67	6 dead	2"	13"	38"	6x13	0	2	MS
232	Dalhart, Texas	9-28-67	1 dead	9"	19"	43"	6x12	0	4	MS
660	Commercial, Kansas	9-28-67	All	2"	7"	48"	5x10	8	0	MS
660	Commercial, Kansas	9-28-67	1 dead	4"	10"	43"	4x10	2	0	MS
660	Commercial, Kansas	9-28-67	All	13"	16"	40"	5x11	5	0	MS
660	Commercial, Kansas	9-28-67	All	4"	15	39"	6x11	6	0	MS
661	Commercial, Texas	9-28-67	All	19"	23	45"	8x14	8	0	A
661	Commercial, Texas	9-28-67	All	3"	20	53"	5x9	12	0	A
661	Commercial, Texas	9-28-67	2 dead	12"	16"	48"	6x10	9	0	MS
661	Commercial, Texas	9-28-67	All	8"	27"	50"	6x12	16	0	A
662	Tahoka, Texas	9-28-67	All	15"	24"	47"	12x12	4	0	MS
662	Tahoka, Texas	9-28-67	All	11"	26"	35"	13x16	1	0	MS
662	Tahoka, Texas	9-28-67	All	19"	26"	40"	13x15	3	0	MS
662	Tahoka, Texas	9-28-67	All	15"	24"	38"	11x12	4	0	MS
662	Tahoka, Texas	9-28-67	All	15"	24"	41"	13x14	5	0	MA
901	Knox City, Texas	9-28-67	All	0	6"	37"	10x9	3	0	MS
901	Knox City, Texas	9-28-67	All	10"	24"	33"	7x9	4	0	MS
901	Knox City, Texas	9-28-67	1 dead	10"	27"	51"	10x9	5	0	MS
901	Knox City, Texas	9-28-67	1 dead	17"	31"	44"	14x18	10	0	MS
902	Knox City, Texas	9-28-67	1 dead	4"	16"	40"	5x8	2	0	A
904	Memphis, Texas	9-28-67	4 dead	-	4"	44"	6x11	1	0	S
905	Floydada, Texas	9-28-67	2 dead	3"	13"	47"	13x14	11	0	MA
905	Floydada, Texas	9-28-67	1 dead	12"	41"	55"	11x16	7	0	A
905	Floydada, Texas	9-28-67	All	13"	34"	49"	10x17	2	0	A
905	Floydada, Texas	9-28-67	All	10"	18"	48"	6x12	2	0	MS
905	Floydada, Texas	9-28-67	2 dead	11"	10"	54"	10x20	10	0	MS
905	Floydada, Texas	9-28-67	2 dead	15"	16"	54"	10x18	25	0	MA
906	Throckmorton, Texas	9-28-67	1 dead	8"	18"	34"	12x16	8	0	S
907	Throckmorton, Texas	9-28-67	5 dead	2"	10"	33"	12x10	6	0	MS
909	Stamford, Texas	9-28-67	All	-	10"	28"	5x6	6	0	S
910	Albany, Texas	9-28-67	6 dead	3"	9"	28"	13x12	3	0	S
911	Albany, Texas	9-28-67	All	2"	12"	37"	10x10	7	0	MS
912	Albany, Texas	9-28-67	6 dead	3"	16"	40"	16x14	5	0	MS
914	Mineral Wells, Texas	9-28-67	All	0	0	17"	10x7	4	0	S
915	Coleman, Texas	9-28-67	1 dead	15"	20"	36"	16x12	4	0	MS
916	Baird, Texas	9-28-67	2 dead	0	6"	28"	11x10	5	0	S
917	Junction, Texas	4-26-68	Replanted and no survivals							
918	Fountain, Colorado	9-28-67	5 dead	0	9"	37"	6x12	3	0	S
919	New Mexico PMC	9-28-67	All	0	8"	36"	10x10	1	0	S
919	New Mexico PMC	9-28-67	All	4"	4"	34"	9x10	3	0	MS

Agropyron smithii - 1968 Notes, cont'd

Agropyron smithii - 1968 Notes, cont'd							(2 counts)			
		Date	Survival	Length	Length	Length		Rhizome		
PMT	Origin	Planted	11-13-67	Rhizomes	Rhizomes	Rhizomes	Size	Count	Rhizome	Density
				1-15-68	4-24-68	10-21-68	4-24-68	10-21-68		
921	Moore Co., Texas	9-28-67	All	0	15"	38"	6x9	4	0	MS
922	Moore Co., Texas	9-28-67	4 dead	6"	20"	45"	8x12	3	0	MS
923	Moore Co., Texas	9-28-67	All	0	0	47"	6x8	3	0	S
923	Moore Co., Texas	9-28-67	All	0	0	36"	4x10	5	0	MS
923	Moore Co., Texas	9-28-67	All	0	14"	26"	5x10	6	0	S
923	Moore Co., Texas	9-28-67	2 dead	14"	17"	35"	7x12	4	0	MS
924	Gray Co., Texas	9-28-67	2 dead	12"	23"	36"	9x15	10	0	MA
925	Gray Co., Texas	9-28-67	1 dead	10"	21"	51"	8x14	1	0	MS
937	Baird, Texas	9-28-67	3 dead	3"	7"	24"	8x10	2	0	S
938	Baird, Texas	9-28-67	10 dead - no evaluations							
1000	Crowell, Texas	9-28-67	3 dead	0	21"	33"	10x14	5	0	MS
1001	Henrietta, Oklahoma	9-28-67	1 dead	5"	20"	31"	22x12	4	0	MS
1002	Crosbyton, Texas	9-28-67	All	6"	13"	44"	6x8	9	0	MS
1003	Anson, Texas	9-28-67	All	6"	18"	27"	11x10	2	0	A
1004	Albany, Texas	9-28-67	1 dead	7"	12"	18"	13x13	0	0	MS
1005	Breckenridge, Texas	9-28-67	1 dead	17"	21"	44"	20x10	3	0	MS
1006	Breckenridge, Texas	9-28-67	1 dead	7"	10"	33"	11x15	0	0	S
1057	Pilot Point, Texas	9-28-67	1 dead	29"	30"	42"	19x16	4	0	MA
1057	Pilot Point, Texas	9-28-67	1 dead	11"	14"	43"	14x17	3	2	MA

A-Block western wheatgrass

1969 Notes

PMT	48" 2-9-69	48" 11-20-69	Vigor of Orig. Row	Disease (Rust)	Seed Production	PMT	48" 2-9-69	48" 11-20-69	Vigor of Orig. Row	Disease (Rust)	Seed Production
214	0-48	13-48	5	1	5	910	3-48	11-48	1	1	1
232	0-48	10-48	1	1	7	911	2-48	7-48	7	3	5
660	0-48	7-48	1	5	9	912	0-48	10-48	1	3	9
660	1-48	7-48	1	5	7	914	0-48	8-48	5	5	7
660	3-48	15-48	1	3	5	915	3-48	14-48	1	3	7
660	1-48	11-48	1	3	5	916	0-48	11-48	3	3	7
661	2-48	9-48	1	5	5	917	-	-	-	-	-
661	0-48	7-48	1	5	3	918	1-48	3-48	7	7	7
661	3-48	12-48	1	1	5	919	1-48	10-48	1	3	7
661	2-48	9-48	7	1	5	919	0-48	2-48	5	3	9
662	3-48	6-48	1	1	7	921	1-48	6-48	1	7	-
662	0-48	7-48	1	3	5	922	2-48	7-48	1	7	5
662	3-48	14-48	1	3	1	923	0-48	9-48	1	7	7
662	3-48	10-48	1	1	5	923	3-48	2-48	1	7	7
662	5-48	20-48	1	1	3	923	0-48	5-48	1	7	1
901	3-48	13-48	1	5	7	923	3-48	4-48	1	7	7
901	3-48	7-48	7	7	5	924	0-48	12-48	1	7	7
901	1-48	15-48	1	1	9	925	2-48	9-48	1	5	7
901	3-48	12-48	1	3	7	937	0-48	10-48	1	1	7
902	2-48	7-48	7	1	3	938	-	1-48	3	5	-
904	1-48	17-48	1	1	5	1000	1-48	18-48	1	3	5
905	3-48	15-48	1	3	5	1001	0-48	7-48	3	5	3
905	3-48	6-48	5	5	7	1002	3-48	15-48	1	7	7
905	2-48	11-48	1	3	3	1003	2-48	13-48	1	5	7
905	0-48	6-48	5	3	9	1004	0-48	24-48	7	1	-
905	1-48	4-48	5	3	5	1005	2-48	13-48	1	1	3
905	5-48	15-48	1	5	1	1006	0-48	7-48	7	1	1
906	1-48	7-48	1	1	5	1057	2-48	17-48	1	7*	1
907	1-48	11-48	1	1	7	1057	2-48	13-48	1	7	1
909	0-48	8-48	1	5	5						

* Ergot in the seed.

Agropyron smithii - western wheatgrass

A-Block - 1970 Notes

FMT	Emerg. 1959	Vigor Old Clone	Disease 12-22-69	Height Measurement					Rhizome Count 48" line				Density 5-25-70	Sq. ft. Count		5-25-70 Seed Production
				11-20	12-22	1-20	2-20	5-25	11-20	12-22	2-20	3-23		3-23	5-20	
214	9-1	7	3	9"	9"	0	2"	19"	13	12	10	17	3	23-17	7-20	5
232	9-1	9	7	7"	7"	0	2"	30"	10	9	8	18	3	23-38	20-20	5
660	9-10	7	7	10"	10"	0	2"	30"	7	6	6	10	5	36-30	9-16	5
660	9-10	3	7	11"	11"	0	2"	19"	11	10	10	20	3	26-22	16-15	5
660	9-10	7	7	10"	10"	0	2"	22"	7	6	9	13	3	16-18	9-13	7
660	9-10	7	7	12"	12"	0	2"	23"	15	11	17	10	5	8-15	19-23	5
661	9-10	5	5	10"	10"	0	1"	29"	12	13	12	24	3	66-23	23-21	5
661	9-10	5	7	7"	7"	0	2"	29"	7	6	5	12	7	34-36	16-11	5
661	9-15	7	7	8"	8"	0	2"	24"	9	8	7	12	7	22-33	17-16	5
661	9-10	5	7	8"	8"	0	2"	24"	9	8	10	16	3	36-36	10-16	5
662	9-1	3	1	12"	12"	2"	3"	32"	26	25	15	14	5	81-69	21-20	3
662	9-1	3	1	7"	7"	2"	2"	32"	6	5	15	14	5	20-28	15-14	3
662	9-1	5	1	11"	11"	2"	2"	34"	7	6	6	14	3	32-26	13-14	3
662	9-1	3	1	12"	12"	2"	2"	32"	14	15	10	21	1	36-31	17-16	3
662	9-1	5	1	9"	9"	2"	2"	27"	10	9	8	17	5	30-32	16-11	3
901	9-10	5	3	11"	11"	0	6"	22"	12	11	12	20	5	51-56	18-18	7
901	9-10	5	3	9"	9"	0	2"	22"	13	14	10	21	5	33-33	20-19	7
901	9-10	5	3	7"	7"	0	3"	34"	7	6	5	18	5	42-37	15-22	7
901	9-10	5	3	8"	8"	0	2"	26"	15	12	13	10	5	31-30	13-22	7
902	9-10	7	7	7"	7"	0	3"	22"	7	7	7	12	5	58-41	22-19	3
904	9-1	5	1	12"	12"	0	3"	23"	17	15	15	20	3	47-27	13-22	5
905	9-1	3	3	12"	12"	2"	6"	25"	15	47	48	6	3	36-43	14-15	3
905	9-1	3	3	10"	10"	2"	3"	30"	15	16	40	17	3	27-30	21-25	3
905	9-1	5	3	8"	8"	2"	6"	22"	4	4	48	20	3	31-54	19-22	3
905	9-1	5	3	11"	11"	0	2"	34"	11	10	10	17	3	30-31	10-17	3
905	9-1	7	3	10"	10"	0	2"	29"	6	5	4	21	3	26-35	20-19	3
905	9-1	7	3	7"	7"	0	1"	23"	6	6	15	12	3	15-22	15-12	3
906	9-1	7	7	9"	9"	0	2"	25"	7	6	10	20	7	21-51	18-13	7
907	9-10	5	7	10"	10"	0	2"	28"	11	10	4	15	3	59-45	22-17	7
909	9-10	7	7	8"	8"	0	2"	26"	8	7	8	20	7	45-37	21-19	7
910	9-1	7	3	9"	9"	0	2"	24"	11	12	14	11	3	79-57	11-26	3
911	9-10	7	7	9"	9"	0	2"	25"	7	6	6	10	3	41-56	20-17	5
912	9-1	5	7	10"	10"	0	2"	29"	10	9	9	21	3	54-15	23-17	9
914	9-1	5	7	12"	8"	0	8"	28"	8	7	0	15	5	38-42	5-20	5
915	9-15	7	7	7"	7"	0	2"	27"	14	13	10	15	3	28-37	17-19	7
916	9-15	7	5	8"	8"	0	2"	31"	11	3	5	0	7	32-30	6-3	7
917	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
918	9-10	3	7	11"	11"	0	2"	24"	3	3	3	6	7	7-4	11-9	7
919	9-10	3	5	8"	8"	0	1"	22"	2	2	1	3	7	9-8	4-6	7
919	9-10	3	5	12"	12"	0	2"	22"	10	9	7	1	7	19-21	7-10	7
920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
921	9-1	7	7	6"	6"	0	1"	22"	3	0	1	3	7	3-7	6-4	7
922	9-1	9	7	10"	10"	0	2"	28"	7	6	9	13	7	17-18	16-18	7
923	9-10	9	7	8"	8"	0	2"	32"	9	8	11	15	7	10-24	5-11	7
923	9-10	7	7	7"	7"	0	2"	32"	5	5	4	12	7	16-19	16-7	7
923	9-10	7	7	7"	7"	0	2"	29"	2	2	3	4	7	17-9	12-10	7
923	9-10	7	7	11"	11"	0	2"	28"	4	4	6	9	7	26-19	5-3	7
924	9-1	9	7	8"	8"	0	2"	21"	12	10	8	14	5	29-37	19-17	7
925	9-10	9	7	9"	9"	0	2"	27"	9	9	7	17	7	30-20	6-15	7
937	9-1	3	3	12"	12"	0	2"	29"	10	12	8	16	3	22-37	7-11	5
938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	9-1	5	3	11"	11"	0	2"	24"	18	20	11	27	3	38-12	10-14	5
1001	9-1	9	3	12"	12"	0	1"	28"	7	6	8	5	7	24-25	8-6	5
1002	9-1	3	7	11"	11"	0	2"	23"	5	3	13	11	5	19-31	16-16	7
1003	9-1	7	7	10"	10"	0	2"	26"	13	12	12	21	1	47-42	21-16	9
1004	9-1	9	3	12"	12"	0	2"	29"	24	18	26	27	1	39-33	9-15	5
1005	9-1	3	3	10"	10"	0	2"	30"	13	14	10	22	3	47-42	22-10	3
1006	9-10	9	7	8"	8"	0	2"	20"	7	6	5	23	3	27-41	5-23	5
1057	9-10	5	1	10"	10"	0	2"	28"	17	20	20	27	3	37-25	20-20	1
1057	9-10	5	1	10"	10"	0	2"	29"	13	10	8	15	3	37-36	8-15	1

Agropyron smithii - western wheatgrass

A-Block - 1971 Notes

FMT	Emerg. Date	Height Measurement							Rhizome Count				Sq. ft. Count	Seed Prod.	Disease	Vigor	Dry For- age Wt.	Density
		10-15-70	11-20	12-20	1-20-71	2-19	3-22	5-20	48" line	11-20-70	12-20	2-19						
214	9-6-70	3"	10"	11"	1 1/2"	1"	6"	18"	10	10	11	18	20-21	5	5	5	250	5
232	9-6-70	3"	6"	7"	1 1/2"	1"	6"	29"	9	10	9	48	24-25	5	7	5	500	5
660	9-6-70	4"	8"	8"	0	1"	3"	26"	3	3	5	15	20-6	7	7	7	250	5
660	9-6-70	5"	10"	10"	1 1/2"	1"	6"	19"	10	9	9	18	24-20	7	5	5	250	5
660	9-6-70	4"	9"	9"	1 1/2"	1"	4"	22"	6	6	8	12	17-18	7	7	5	250	7
660	9-6-70	6"	10"	10"	3/4"	2"	6"	22"	15	17	2	6	8-20	7	7	5	500	5
661	9-6-70	5"	9"	9"	0	1 1/2"	7"	12"	12	12	13	16	60-30	5	3	5	500	3
661	9-6-70	3"	6"	6"	1 1/2"	1"	6"	14"	8	7	4	11	34-34	5	3	7	250	7
661	9-6-70	4"	7"	7"	0	1 1/2"	3"	25"	8	8	5	10	16-21	5	7	7	500	7
661	9-6-70	3"	7"	7"	1 1/2"	1"	4"	23"	12	10	10	12	34-37	5	5	5	250	5
662	9-6-70	6"	11"	12"	1 1/2"	3"	7"	30"	27	19	14	14	8-69	3	1	3	250	3
662	9-6-70	3"	7"	7"	1 1/2"	2"	6"	22"	5	5	13	12	22-29	5	1	5	500	5
662	9-6-70	4"	10"	11"	1 1/2"	1"	5"	24"	6	7	5	16	30-36	5	1	5	500	3
662	9-6-70	4"	10"	11"	1 1/2"	1"	6"	26"	10	14	11	20	34-34	3	1	5	500	3
662	9-6-70	3"	8"	8"	1 1/2"	1"	6"	28"	8	9	7	11	21-27	5	1	5	500	3
901	9-6-70	5"	10"	12"	0	1"	6"	21"	10	12	8	18	42-32	5	3	5	250	7
901	9-6-70	3"	7"	8"	0	1"	3"	21"	9	11	8	19	20-11	5	7	3	500	5
901	9-6-70	2"	6"	6"	1 1/2"	2"	6"	32	3	5	4	10	12-16	5	7	5	500	5
901	9-6-70	4"	7"	7"	1 1/2"	1"	5"	27"	12	20	12	23	30-32	5	1	5	500	5
902	9-6-70	5"	10"	11"	0	1"	12"	21"	6	7	12	19	50-42	5	5	3	500	5
904	9-6-70	6"	12"	12"	1 1/2"	2"	5"	15"	17	15	15	20	42-30	7	1	5	250	5
905	9-6-70	5"	11"	10"	3	-	5"	24"	14	13	14	18	35-40	5	1	5	500	5
905	9-6-70	4"	10"	10"	0	1 1/2"	-	29"	10	11	8	15	26-29	5	1	5	250	5
905	9-6-70	3"	7"	8"	0	2"	7"	23"	23	24	46	22	42-51	5	1	5	500	3
905	9-6-70	5"	10"	10"	1 1/2"	1"	12"	32"	20	11	10	12	28-30	3	1	3	750	3
905	9-6-70	4"	9"	11"	1 1/2"	1"	6"	29"	5	4	5	22	24-38	3	7	3	250	3
905	9-6-70	3"	5"	6"	1 1/2"	2"	5"	22"	5	7	15	12	20-21	3	5	5	250	3
906	9-6-70	3"	8"	9"	0	1"	-	24"	6	7	7	14	9-15	5	5	5	500	7
907	9-6-70	5"	8"	10"	0	1"	10"	29"	8	9	10	10	40-32	5	5	5	500	3
909	9-6-70	4"	7"	9"	0	1 1/2"	6"	32"	6	15	-	15	22-19	7	5	5	250	7
910	9-6-70	3"	8"	8"	0	1"	-	23"	10	9	8	11	62-43	5	1	5	500	3
911	9-6-70	1"	4"	6"	0	1"	7"	24"	3	5	3	7	22-21	5	3	5	250	3
912	9-6-70	5"	9"	10"	0	1"	8"	30"	8	6	8	16	50-42	5	1	3	250	3
914	9-6-70	6"	10"	8"	0	0	0	0	14	0	0	0	0	7	7	7	250	7
915	9-6-70	3"	12"	6"	0	1"	-	28"	13	15	7	11	17-19	5	5	3	250	3
916	9-6-70	3"	6"	6"	0	1"	6"	30"	5	0	8	11	25-21	3	1	3	500	3
917	9-6-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
918	9-6-70	5"	10"	10"	1 1/2"	1"	4"	23"	2	4	5	5	10-12	7	7	7	250	7
919	9-6-70	3"	7"	7"	8"	1"	1"	20"	2	1	1	2	5-5	7	5	7	250	7
919	9-6-70	7"	10"	12"	1 1/2"	2"	4"	21"	10	9	7	10	21-20	7	1	7	250	7
920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
921	9-6-70	3"	7"	8"	2"	2"	5	25"	5	8	6	10	30-28	5	5	5	250	5
922	9-6-70	5"	9"	10"	1 1/2"	1"	6"	29"	8	9	10	12	16-36	5	7	5	250	5
923	9-6-70	3"	8"	8"	1 1/2"	1"	-	30"	6	10	10	10	6-10	5	5	5	250	5
923	9-6-70	3"	6"	-	0	1"	3"	28"	1	-	2	2	10-9	7	5	7	250	7
923	9-6-70	5"	10"	-	0	1"	3"	27"	2	-	3	6	16-18	7	5	7	250	5
924	9-6-70	3"	7"	8"	1 1/2"	1"	4"	19"	10	11	6	15	18-20	7	7	7	250	7
925	9-6-70	3"	8"	8"	1 1/2"	1"	6"	26"	8	11	6	20	30-22	7	3	7	250	7
937	9-6-70	5"	11"	12"	1 1/2"	1"	-	28"	12	13	10	16	24-38	5	1	3	500	3
938	9-6-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	9-6-70	4"	10"	10"	1 1/2"	1"	-	23"	20	22	12	9	-	5	3	5	500	3
1001	9-6-70	-	10"	10"	1 1/2"	1"	9"	28"	0	7	7	20	23-25	5	5	3	500	7
1002	9-6-70	1"	10"	10"	1 1/2"	1"	6"	22"	8	14	10	15	18-28	7	7	3	500	5
1003	9-6-70	4"	9"	9"	1 1/2"	1"	6"	20"	3	11	10	20	42-26	9	5	1	500	1
1004	9-6-70	6"	11"	12"	1 1/2"	1"	9"	28"	26	28	19	28	36-38	5	1	1	500	1
1005	9-6-70	4"	8"	9"	1 1/2"	-	-	29"	13	15	11	20	40-43	3	5	3	250	3
1006	9-6-70	3"	7"	8"	1 1/2"	1"	8"	19"	7	25	4	25	27-38	5	3	3	500	3
1057	9-6-70	5"	9"	9"	1 1/2"	8"	-	27"	9	21	18	25	36-28	3	7*	3	500	3
1057	9-6-70	4"	8"	10"	1 1/2"	1"	-	30"	12	11	7	14	36-36	1	7*	5	500	5

* Ergot in the seed.

SUMMARY

Agropyron smithii - western wheatgrassRhizome Count Along a 48" Line
1968, 1969, 1970 & 1971

PMT		1968	1968	1969	1970				1971				Aver-	Rank
		Occular 10-21-68	2-9-68	11-20-68	11-20-69	12-22-69	2-20-70	3-23-70	11-20-70	12-20-70	2-19-71	3-22-71	Total	
214	MS		0	13	13	12	10	17	10	10	11	18	114	10
232	MS		0	10	10	9	8	18	9	10	9	48	131	7
660	MS		0	7	7	6	6	10	3	3	5	15		
660	MS		1	7	11	10	10	20	10	9	9	18		
660	MS		3	15	7	6	9	13	6	6	8	12		
660	MS		1	11	15	11	17	10	15	17	2	6	92	18
661	A		2	9	12	13	12	24	12	12	13	16		
661	A		0	7	7	6	5	12	8	7	4	11		
661	MS		3	12	9	8	7	12	8	8	5	10		
661	A		2	9	9	8	10	16	12	10	10	12	93	17
662	MS		3	6	26	25	15	14	27	19	14	14		
662	MS		0	7	6	5	15	14	5	5	13	12		
662	MS		3	14	7	6	6	14	6	7	5	16		
662	MS		3	10	14	15	10	21	10	14	11	20		
662	MA		5	20	10	9	8	17	8	9	7	11	112	11
901	MS		3	13	12	11	12	20	10	12	8	18		
901	MS		3	7	13	14	10	21	9	11	8	19		
901	MS		1	15	7	6	5	18	3	5	4	10		
901	MS		3	12	15	12	13	10	12	20	12	23	110	12
902	A		2	7	7	7	7	12	6	7	12	19	86	21
904	S		1	17	17	15	15	20	17	15	15	20	152	3
905	MA		3	15	15	47	48	6	14	13	14	18		
905	A		3	6	15	16	40	17	10	11	8	15		
905	A		2	11	4	4	48	20	23	24	46	22		
905	MS		0	6	11	10	10	17	20	11	10	12		
905	MS		1	4	6	5	4	21	5	4	5	22		
905	MA		5	15	6	6	15	12	5	7	15	12	138	5
906	S		1	7	7	6	10	20	6	7	7	14	85	22
907	MS		1	11	11	10	4	15	8	9	10	10	89	19
909	S		0	8	8	7	8	20	6	15	0	15	87	20
910	S		3	11	11	12	14	11	10	9	8	11	102	14
911	MS		2	7	7	6	6	10	3	5	3	7	56	25
912	MS		0	10	10	9	9	21	8	6	8	16	97	16
914	S		0	8	8	7	0	15	-	-	-	-		
915	MS		3	14	14	13	10	15	13	15	7	11	115	9
916	S		0	11	11	3	5	0	5	0	8	11	54	26
917	-		-	-	-	-	-	-	-	-	-	-	-	-
918	S		1	3	3	3	3	6	2	4	5	5	35	30
919	S		1	10	2	2	1	3	2	1	1	2		
919	MS		0	2	10	9	7	1	10	9	7	10	45	28
920	-		-	-	-	-	-	-	-	-	-	-	-	-
921	MS		1	6	3	0	1	3	5	8	6	10	43	29
922	MS		2	7	7	6	9	13	8	9	10	12	83	23
923	S		0	9	9	8	11	15	6	10	10	10		
923	MS		3	2	5	5	4	12	6	4	4	10		
923	S		0	5	2	2	3	4	1	0	2	2		
923	MS		3	4	4	4	6	9	2	0	3	6	52	27
924	MA		0	12	12	10	8	14	10	11	6	15	98	15
925	MS		2	9	9	9	7	17	8	11	6	20	98	15
937	S		0	10	12	8	16	3	12	13	10	18	102	14
938	-		0	1	-	-	-	-	-	-	-	-	-	-
1000	MS		1	18	18	20	11	27	20	22	12	9	158	2
1001	MS		0	7	7	6	8	5	6	7	7	20	73	24
1002	MS		3	15	5	3	13	11	8	14	10	15	97	16
1003	A		2	13	13	12	12	21	3	11	10	20	117	8
1004	MS		0	24	24	18	26	27	26	28	19	28	220	1

SUMMARY - western wheatgrass - Rhizome Count, cont'd

PMT	1968	1968	1969	1970				1971				Average		
	Occular	10-21-68	2-9-68	11-20-68	11-20-69	12-22-69	2-20-70	3-23-70	11-20-70	12-20-70	2-19-71	3-22-71	Total	Rank
1005	MS	2		13	13	14	10	22	13	15	11	20	133	6
1006	S	0		7	7	6	5	23	7	25	4	25	109	13
1057	MA	2		17	17	20	20	27	9	21	18	25		
1057	MA	2		13	13	10	8	15	12	11	7	14	141	4

SUMMARY

Average Rhizome Count
In One Sq. Ft. Count

PMT	1970		1971		Average Total	Rank	PMT	1970		1971		Average Total	Rank
	3-23	5-20	3-22	5-20				3-23	5-20	3-22	5-20		
214	23-17	7-20	20-21	16-19	134	29	910	79-57	11-26	62-43	22-26	326	1
232	23-38	20-20	24-25	19-21	190	19	911	41-56	20-17	22-21	12-17	206	14
660	36-30	9-16	20-6	7-12			912	54-45	23-17	50-42	15-18	264	3
660	26-22	16-15	24-20	20-18			914	38-42	5-20	-	-	-	-
660	16-18	9-13	17-18	15-9			915	38-37	17-19	17-19	11-17	175	22
660	8-15	19-23	8-20	20-23	137	27	916	32-30	6-3	25-21	8-12	137	27
661	66-23	23-21	60-30	23-20			917	-	-	-	-	-	-
661	34-36	16-11	34-34	15-14			918	7-4	11-9	10-12	23-40	116	31
661	22-33	17-16	16-21	15-17			919	9-8	4-6	5-5	20-24		
661	36-36	10-16	34-37	30-28	211	13	919	19-21	7-10	21-20	7-12	99	33
662	81-69	21-20	80-69	27-29			920	-	-	-	-	-	-
662	20-28	15-14	22-29	11-16			921	3-7	6-4	30-28	8-7	93	34
662	32-26	13-14	30-36	35-25			922	17-18	16-18	16-36	17-20	158	24
662	36-31	17-16	34-34	30-36			923	10-24	5-11	6-10	10-20		
662	30-32	16-11	21-27	30-31	239	7	923	16-19	16-7	14-16	15-10		
901	51-56	18-18	42-32	18-17			923	17-9	12-10	10-9	9-11		
901	33-33	20-19	20-11	21-18			923	26-19	5-3	16-18	7-12	101	32
901	42-37	15-22	12-16	14-18			924	29-37	19-17	18-20	30-30	200	15
901	31-30	13-22	30-32	13-20	199	16	925	30-20	6-15	30-22	6-14	143	26
902	58-41	22-19	50-42	18-17	267	2	937	22-37	7-11	24-38	20-26	185	21
904	47-27	13-22	42-30	20-18	219	11	938	-	-	-	-	-	-
905	36-43	14-15	35-40	28-31			1000	38-12	10-14	-	-	-	-
905	27-30	21-25	26-29	17-19			1001	24-25	8-6	23-25	9-11	131	30
905	31-54	19-22	42-51	25-32			1002	19-31	16-16	18-28	10-13	151	25
905	30-31	10-17	28-30	22-26			1003	47-42	21-16	42-26	21-26	241	6
905	26-35	20-19	24-38	20-28			1004	39-33	9-15	36-38	8-16	194	18
905	15-22	15-12	20-21	22-20	212	12	1005	47-42	22-10	40-43	21-11	236	9
906	21-51	18-13	9-15	18-23	168	23	1006	27-41	5-23	27-38	7-18	188	20
907	59-45	22-17	40-32	16-21	252	4	1057	37-25	20-20	36-28	25-22		
909	45-37	21-19	40-35	22-19	238	8	1057	37-36	8-15	36-36	7-12	200	15

Summary - western wheatgrass, cont'd

Summary of All Notes

western wheatgrass						western wheatgrass					
<u>PMT</u>	<u>Rank</u> <u>Sq.2</u>	<u>Rank</u> <u>Rhizome</u> <u>Count</u> <u>48"</u>	<u>Rank</u> <u>Performance</u>	<u>Total</u> <u>Rank</u>	<u>Final</u> <u>Rank</u>	<u>PMT</u>	<u>Rank</u> <u>Sq.2</u>	<u>Rank</u> <u>Rhizome</u> <u>Count</u> <u>48"</u>	<u>Rank</u> <u>Performance</u>	<u>Total</u> <u>Rank</u>	<u>Final</u> <u>Rank</u>
214	29	10	11	50	15	919	33	28	16.5	77.5	24
232	19	7	14	40	11	920	-	-	-	-	-
660	27	18	18	63	21	921	34	29	-	-	-
661	13	17	13	43	13	922	24	23	19	66	22
662	7	11	2.6	20.6	4	923	32	27	19	78	25
901	16	12	13	41	12	924	15	15	21	51	16
902	2	21	12	35	9	925	26	15	20	61	20
904	11	3	6	20	3	937	21	14	4	39	10
905	12	5	6.5	23.5	5	938	-	-	-	-	-
906	23	22	15	60	19	1000	-	2	7	-	-
907	4	19	11	34	8	1001	30	24	14	68	23
909	8	20	18	46	14	1002	25	16	16	57	18
910	1	14	3	18	2	1003	6	8	13	27	6
911	14	25	13	52	17	1004	18	1	-	-	-
912	3	16	11	30	7	1005	9	6	2	17	1
914	-	-	-	-	-	1006	20	13	8	41	12
915	22	9	12	43	13	1057	15	4	4.5	23.5	5
916	27	26	10	63	21						
917	-	-	-	-	-						
918	31	30	22	83	26						

LEGEND

Rhizome Count: Determined by counting the number of hits along a straight line 48 inches long.

Rhizome Density: Occular estimate in 1968. MS = moderately sparce, MA = moderately abundant, A = Abundant
S = sparce.

Vigor: Occular estimate 1-9, with 1 = best, 9 = very weak.

Disease: Occular estimate 1 = 0-20% of leaf surface effected; 3 = 20-40%, 5 = 40-60%, 7 = 60-80%, 9 = 80-100%.

Seed Production: Occular estimate 1-9 with 1 best and 9 weak.

Height: Measured in inches.

Square foot Count: This was done using a wire frame 1 ft. x 1 ft. and obtaining 3 random counts on each side of row. Average of the 3 counts were recorded.

Forage Weight: Dry weight in grams clipped at maturity. Two clips were made using 1 square foot frame on each side of row.

Summary Tables: For rhizome counts along a 48" inch line show counts each year. The total count was then ranked so that the highest rhizome count equaled 1.

Summary of All Notes: The list of rank by rhizome count along a 48 inch line, square foot count, and performance notes were all added together to equal the final rank.

RESULTS:

The final rank, 1 - 10, are listed below:

1 - PMT-1005	Breckenridge, Texas	6 - PMT-1003	Anson, Texas
2 - PMT-910	Albany, Texas	7 - PMT-912	Albany, Texas
3 - PMT-904	Memphis, Texas	8 - PMT-907	Throckmorton, Texas
4 - PMT-662	Tahoka, Texas	9 - PMT-902	Knox City, Texas
5 - PMT-905	Floydada, Texas	10 - PMT-937	Baird, Texas
5 - PMT-1057	Pilot Point, Texas		

Summary - western wheatgrass - Results, cont'd

PMT-1005 - Breckenridge, Texas

PMT-1005 western wheatgrass from Breckenridge, Texas gave the best overall performance during the four year study. This was determined by ocular estimate, square foot rhizome count, and rhizome count along a 48" inch straight edge as indicated in the preceding tables.

PMT-902,904,907,910,912 and 937

These would not be considered for plant increase because the original row died out during the second year of study. All data collected after the first year was from new rhizome development.

PMT-662 - Tahoka, Texas

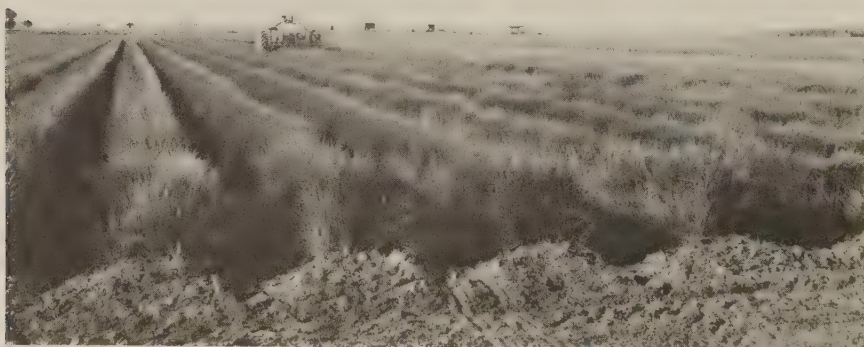
PMT-662 from Tahoka, Texas would be second choice. It exhibited fair to good seed production and good rhizome development and rust resistance. It was increased to a one-acre seed production block in the fall of 1968.

PMT-905 - Floydada, Texas

PMT-905 from Floydada, Texas is third choice. Rhizome development was a little better than PMT-662 but is not as resistant to rust. Seed production is consistently lower than PMT-662. PMT-905 was increased to a .95 acre seed production block in the fall of 1968.

PMT-1057 - Pilot Point, Texas

PMT-1057 western wheatgrass from Pilot Point, Texas was a superior strain. It had good rhizome production and excellent seed production and was fairly resistant to rust. Seed crops were effected by ergot.



Te-10780-7 PMT-662 - 1 acre increase production field being sprayed for greenbugs.

WATERSHED STUDIES

The following PMT numbered plantings were made on Center during 1970 and 1971 for possible use on watershed structures. We are searching for plants with a well developed root system that is easy to establish. Rhizomes and plants of common reedgrass, sandbar willow and indigo bush were used in 1970 and 1971 on structures where wave action is a problem. Switchgrass is also being tested for this use. The plants must withstand dry periods and be able to survive when inundated for short periods.

WOODY SPECIES

<u>PMT No.</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>TYPE PLANTING</u>
2385	<i>Alnus serrulata</i>	hazel alder	Chawtaw, Oklahoma	Vegetative
2297	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Gainesville, Texas	Seed
2298	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Stanton, Nebraska	Seed
2299	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Talihina, Oklahoma	Seed
2348	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Jacksboro, Teda	Vegetative
2393	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Hugo, Oklahoma	Vegetative
2467	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Kansas PMC	Seed
2468	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Bowie, Texas	Seed
2469	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Knox City, Texas	Seed
2470	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Muenster, Texas	Seed
2471	<i>Amorpha fruticosa</i>	indigo-bush amorpha	Muenster, Texas	Seed
2338	<i>Cephalanthus occidentalis</i>	buttonbush	Georgia PMC	Whips
2392	<i>Cephalanthus occidentalis</i>	buttonbush	Washington, Oklahoma	Plants
2497	<i>Cephalanthus occidentalis</i>	buttonbush	Knox City, Texas	Whips
2996	<i>Lycium halimifolium</i>	matrimonyvine	Kansas PMC	Whips
2386	<i>Rosa wichuraina</i>	wichuria rose	NPMC	Cuttings
2372	<i>Salix interior</i>	sandbar willow	Miss. PMC	Whips
2384	<i>Salix interior</i>	sandbar willow	Knox City, Texas	Whips
2437	<i>Salix interior</i>	sandbar willow	Clinton, Oklahoma	Whips
2792	<i>Salix interior</i>	sandbar willow	Knox City, Texas	Whips
2391	<i>Salix lucida</i>	shinning willow	Washington, Oklahoma	Whips

GRASS SPECIES

<u>PMT No.</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>TYPE PLANTING</u>
2243	<i>Arundinaria gigantea</i>	giant cane	Hugo, Oklahoma	Vegetative
2377	<i>Arundinaria sp.</i>	cane	Lawrence, Texas	Vegetative
2387	<i>Arundinaria sp.</i>	cane	Hugo, Oklahoma	Vegetative
2438	<i>Arundinaria tecta</i>	switchcane	Quicksand, Kentucky	Vegetative
2439	<i>Arundinaria tecta</i>	switchcane	Quicksand, Kentucky	Vegetative
2796	<i>Arundinaria tecta</i>	switchcane	Nashville, Tennessee	Vegetative
2347	<i>Arundo donax</i>	giant reedgrass	Georgia PMC	Corms
2357	<i>Arundo donax</i>	giant reedgrass	Rio Grande City, Texas	Corms
2358	<i>Arundo donax</i>	giant reedgrass	Laredo, Texas	Corms
2390	<i>Arundo donax</i>	giant reedgrass	Washington, Oklahoma	Corms
2794	<i>Arundo donax</i>	giant reedgrass	Florida PMC	Corms
2383	<i>Leersia oryzoides</i>	rice cutgrass	Rosenberg, Texas	Corms
2379	<i>Panicum hemitomon</i>	maidencane	Anahuac, Texas	Rhizomes
2394	<i>Panicum hemitomon</i>	maidencane	Miss. PMC	Rhizomes
2274	<i>Paspalum distichum</i>	knotgrass	Tahoka, Texas	Seed
2359	<i>Phragmites communis</i>	common reedgrass	Laredo, Texas	Rhizomes
2376	<i>Phragmites communis</i>	common reedgrass	Lawrence, Texas	Rhizomes
2380	<i>Phragmites communis</i>	common reedgrass	Anahuac, Texas	Rhizomes
2382	<i>Phragmites communis</i>	common reedgrass	Beaumont, Texas	Rhizomes
2440	<i>Phragmites communis</i>	common reedgrass	Clinton, Oklahoma	Rhizomes
2741	<i>Phragmites communis</i>	common reedgrass	Kansas PMC	Rhizomes
2352	<i>Phyllostachys bambusoides</i>	bamboo	Georgia PMC	Rhizomes
2351	<i>Phyllostachys bissetti</i>	bamboo	Georgia PMC	Rhizomes
2353	<i>Phyllostachys nigra</i>	bamboo	Georgia PMC	Rhizomes
2244	<i>Phyllostachys sp.</i>	bamboo	Fort Worth, Texas	Rhizomes

GRASS SPECIES

<u>PMT NO.</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>TYPE PLANTING</u>
2350	Phyllostachys sp.	bamboo	Georgia FMC	Rhizomes
2360	Phyllostachys sp.	bamboo	San Antonio, Texas	Rhizomes
2361	Phyllostachys sp.	bamboo	San Antonio, Texas	Rhizomes
2369	Phyllostachys sp.	bamboo	Abilene, Texas	Rhizomes
2788	Phyllostachys sp.	bamboo	Fort Worth, Texas	Rhizomes
2389	Spartina pectinata	prairie cordgrass	Clinton, Oklahoma	Seed
2448	Spartina pectinata	prairie cordgrass	Lobette Co., Kansas	Seed
2449	Spartina pectinata	prairie cordgrass	Wagoner Co., Oklahoma	Seed
2450	Spartina pectinata	prairie cordgrass	Alfalfa Co., Oklahoma	Seed
2451	Spartina pectinata	prairie cordgrass	Shawnee, Oklahoma	Seed
2452	Spartina pectinata	prairie cordgrass	Montgomery Co., Kansas	Seed
2618	Spartina pectinata	prairie cordgrass	Canadian, Texas	Seed
2619	Spartina pectinata	prairie cordgrass	Miami, Texas	Seed
2620	Spartina pectinata	prairie cordgrass	Stinnett, Texas	Seed
2621	Spartina pectinata	prairie cordgrass	Wheeler, Texas	Seed
2622	Spartina pectinata	prairie cordgrass	Amarillo, Texas	Seed
2623	Spartina pectinata	prairie cordgrass	Hartley, Texas	Seed
2624	Spartina pectinata	prairie cordgrass	Vega, Texas	Seed

FORBS

<u>PMT NO.</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>TYPE PLANTING</u>
2249	Justica americana	justica	Waxahachie, Texas	Vegetative



Te-12309-13 Maidencane, prairie cordgrass, shoredune panicum, and giant reedgrass plots being evaluated for use on watershed structures.

CULTURAL STUDIES

I. Insect Problems and Control

Insects were controlled during the 1971 season as recommended by Mr. Emory Boring, Area Entomologist, Texas Agricultural Extension Service. Most of the insect damage was the same as 1970 except that there were no problems with green bugs or white grubs. Diazanone was used to control thrip, aphid, midge and army worms. The following table summarizes the 1971 spray application on the Center.

Insect Problems And Control
 $\frac{1}{2}$ # of Diazanone per/Acre

<u>PMT</u>	<u>NAME</u>	<u>Number of Times</u>	<u>TYPE</u>
874	Engelmannia pinnatifida	2	Tractor
856	Bush sunflower	2	Tractor
201	Sideoats	1	Tractor w/hand hose
328	Sideoats	1	Tractor
470	Sideoats	1	Tractor w/hand hose
587	Old world bluestem	2	Tractor w/hand hose
1733	Alkali sacaton	1	Tractor
785	Switchgrass	1	Tractor w/hand hose
788	Switchgrass	1	Tractor w/hand hose
212	Wilman lovegrass	1	Tractor w/hand hose

II. Herbicide Studies

Since the Center is located in the heart of the cotton country, 2, 4-D and other volatile chemicals cannot be used after the emergence of cotton in the spring. Pre-emergence herbicides control grass seedlings as well as weeds and cannot be used. No chemicals were used during the 1971 growing season.

Simazine 80W weed killer was applied to the buffalo grass plot in late February. Good control of summer annual weeds was obtained.

MSMA was used again for spot application of grass in fallow fields. It was also used in individual plants along borders and in production fields. The plants were saturated with a solution of one quart of material in 20 gallons of water.

III. Fertilizer Studies

Different fertilizer rates are being applied on each production field. Four rows are left as a check for the crops response to fertilization.

The primary objective is to maintain a constantly high seed yield. Forage yield comparisons between accessions of the same species are also noted. The following table resulted from clipping studies during the 1971 crop year. A few accessions do not show fertilizer response but were included as a comparison in yield between different accessions of the same species with identical treatment.

FORAGE YIELD OF FERTILIZED PRODUCTION FIELDS

FMT NO.	SCIENTIFIC NAME	COMMON NAME	TYPE TREATMENT	FORAGE PROD.	
				RATIO DRY WT. %	#AC/DRY WEIGHT
333	Andropogon barbinoides	cane bluestem	Unfertilized	1.0	3250
333	Andropogon barbinoides	cane bluestem	60#N, 20#P	2.23	
588	Andropogon caucasicus	Caucasian bluestem	Unfertilized	1.0	3000
588	Andropogon caucasicus	Caucasian bluestem	0#N, 40#P	1.0	
588	Andropogon caucasicus	Caucasian bluestem	60#N, 40#P	2.75	
588*	Andropogon caucasicus	Caucasian bluestem	Unfertilized	.81	
588*	Andropogon caucasicus	Caucasian bluestem	Unfertilized	2.50	
587	Dichanthium sp.	old world bluestem	Unfertilized	1.0	5000
587	Dichanthium sp.	old world bluestem	60#N, 0#P	1.80	
587	Dichanthium sp.	old world bluestem	60#, 0#P	2.40	
587	Dichanthium sp.	old world bluestem	60#N, 20#P	2.55	
587**	Dichanthium sp.	old world bluestem	60#N, 20#P	2.30	
587*	Dichanthium sp.	old world bluestem	Unfertilized	2.75	
587*	Dichanthium sp.	old world bluestem	Unfertilized	2.40	
587*	Dichanthium sp.	old world bluestem	Unfertilized	2.40	
328	Bouteloua curtipendula	sideoats grama	Unfertilized	1.0	3500
328	Bouteloua curtipendula	sideoats grama	60#N, 40#P	2.14	
470	Bouteloua curtipendula	sideoats grama	Unfertilized	1.0	5250
470	Bouteloua curtipendula	sideoats grama	0#N, 40#P	1.0	
470	Bouteloua curtipendula	sideoats grama	60#N, 20#P	1.52	
201	Bouteloua curtipendula	sideoats grama	60N, 20#P	1.19	
1221	Bouteloua gracilis	bluegrama	Unfertilized	1.0	2500
1221	Bouteloua gracilis	bluegrama	60#N, 20#P	1.90	
697	Bouteloua gracilis	bluegrama	60#N, 20#P	2.10	
Sel. 75	Panicum coloratum	kleingrass	Unfertilized	1.0	2000
Sel. 75	Panicum coloratum	kleingrass	0#N, 40P	1.50	
Sel. 75	Panicum coloratum	kleingrass	60#N, 40P	2.75	
785	Panicum virgatum	switchgrass	Unfertilized	1.0	7000
785	Panicum virgatum	switchgrass	60#N, 20P	1.50	
788	Panicum virgatum	switchgrass	60#N, 20P	2.35	
279	Panicum virgatum	switchgrass	60#N, 20P	1.14	
802	Sorghastrum nutans	indiangrass	60#N, 20#P	1.0	11,250
335	Sorghastrum nutans	indiangrass	60#N, 20#P	1.02	

* 1971 planting

** 1970 planting

IV. Legume Inoculant

Native legumes planted on the Center from other locations in the state often do not find the required nitrogen fixing organisms in the soil. Without them they are a light yellowish green color and do not make normal growth. Nitrogenous fertilizers are often poisonous to them.

During the past three years much work has been done developing inoculant for native legumes through correspondance with Dr. Joe Burton, Vice President, of The Nitrogen Company Inc. located at Milwaukee, Wisconsin. This was done by sending seed of various legumes to Dr. Burton for nitrogen fixation tests in growth chambers. It was found that often rhizobia developed for one legume is effective on a number of species. The table below shows the plant and rhizobis that would be effective as an inoculant.

<u>SCIENTIFIC NAME</u>	<u>INOCULANT</u>
Neptunia lutea	Robina Eysenhardtia Astroagalus
Desmanthus virgatus	Desmanthus illinois Desmanthus depressus
Indigofera leptosepala	"EL" Nitrogen
Rhynchosia minima	Rhynchosia minima
Robina fertilis	Robina fertilis
Stroplostyles helvola	Stroplostyles

Only two of the above listed plants require a special inoculant.

Work is still being done on other legumes.



Te-12784-6 Root of PMT-1879 trailing wildbean showing nodulation caused by nitrogen fixing rhizobium.

V. Germination Studies

In order to get proper placement on seed allotments going into evaluation plantings in the field it was found necessary to hold seed in storage an extra year. This allows the Plant Materials Specialist time to key the seed placement into the climatic and soil characteristics to best fit its natural range. In the case of exotics it gives time to place them in a wide soils and climatic difference for adaptation studies. Germination tests were made during the winter months following harvest. The 'direct' method is used to determine seeding rate in the field. Results of germination tests run for the 1972 spring plantings are as follows:

PMT	SCIENTIFIC NAME	COMMON NAME	SPROUTS/LBS.	PLANTING	PLANTING
				RATE 40" ROWS	RATE DRILLED
662	Agropyron smithii	western wheatgrass	13,950	18.6	62.4
905	Agropyron smithii	western wheatgrass	5,400	48.1	161.0
333	Andropogon barbinoides	cane bluestem	155,100	1.70	5.6
588A1	Andropogon caucasicus	Caucasian bluestem	246,600	1.1	3.5
588F	Andropogon caucasicus	Caucasian bluestem	180,600	1.4	4.8
588A	Andropogon caucasicus	Caucasian bluestem	109,200	2.3	7.9
1482	Andropogon hallii	sand bluestem	25,800	10.0	33.7
1482A	Andropogon hallii	sand bluestem	50,400	4.8	17.2
1482B	Andropogon hallii	sand bluestem	42,300	6.1	20.5
1482C	Andropogon hallii	sand bluestem	26,400	9.8	32.9
1041	Atriplex canescens	fourwing saltbush	8,400	30.9	103.0
201	Bouteloua curtipendula	sideoats grama	117,600	2.2	7.4
328	Bouteloua curtipendula	sideoats grama	35,700	7.3	24.4
470	Bouteloua curtipendula	sideoats grama	107,400	2.4	8.1
697	Bouteloua gracilis	bluegrama	332,400	0.8	2.6
1221	Bouteloua gracilis	bluegrama	271,800	0.95	3.2
1181	Buchloe dactyloides	buffalograss	96,000	2.7	9.0
711	Chloris cucullata	hooded windmillgrass	530,400	0.49	1.6
2408	Desmanthus virgatus (depressus	prostrate bundle- flower	51,000	5.1	17.0
587-A	Dichanthium sp.	old world bluestem	365,100	0.71	2.3
587E-1	Dichanthium sp.	old world bluestem	435,000	0.59	2.0
587E	Dichanthium sp.	old world bluestem	151,800	1.7	5.7
587F	Dichanthium sp.	old world bluestem	137,100	1.9	6.3
587J-1	Dichanthium sp.	old world bluestem	300,000+	1.0-	2.0-
587-J	Dichanthium sp.	old world bluestem	185,400	1.4	4.6
1198	Elymus sabulosus		1,500	173.3	580.0
874	Engelmannia pinnatifida	engelmann daisy	14,400	18.0	64.0
718	Eragrostis curvula	weeping lovegrass	911,700	0.28	0.95
729	Eragrostis curvula	weeping lovegrass	877,950	0.29	0.99
732F	Eragrostis lehmanniana	lehmann lovegrass	289,800	0.90	3.0
732H	Eragrostis lehmanniana	lehmann lovegrass	552,150	0.47	1.5
2121	Eragrostis superba	Wilman lovegrass	294,750	.89	2.9
338	Eragrostis piliifera	sandhill lovegrass	699,750	0.37	1.2
1564	Helianthus maximilian	maximilian sunflower	80,100	3.2	10.8
1051	Indigofera leptosepala	western indigo	39,600	6.6	22.0
862	Menodora longifolia	showy menodora	40,200	6.4	21.6
10	Panicum coloratum	Sel. 75 kleingrass	277,200	0.94	3.1
1480	Panicum havardi	havard panicum	17,550	14.8	49.7
2245	Panicum havardi	havard panicum	64,350	4.0	13.5
279	Panicum virgatum	switchgrass	138,600	1.8	6.2

Germination Studies, cont'd

<u>PMT</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SPROUTS/LBS.</u>	<u>PLANTING RATE 40" ROWS</u>	<u>PLANTING RATE Drilled</u>
785	<i>Panicum virgatum</i>	switchgrass	166,050	1.5	5.2
788	<i>Panicum virgatum</i>	switchgrass	363,150	0.72	2.4
331	<i>Pennisetum ciliare</i>	buffelgrass	72,000	3.6	12.0
939	<i>Phalaris aquatica</i>	'Wintergreen' hardinggrass	211,950	1.2	4.1
1881	<i>Rhynchosia minima</i>	least snoutbean	18,450	14.0	47.3
856	<i>Simsia calva</i>	bush sunflower	88,200	2.0	9.8
335	<i>Sorghastrum nutans</i>	indiangrass	60,000	4.3	14.5
802	<i>Sorghastrum nutans</i>	indiangrass	58,000	4.4	14.9
326	<i>Sporobolus airoides</i>	alkali sacaton	790,650	0.32	1.1
1733	<i>Sporobolus airoides</i>	alkali sacaton	768,600	0.33	1.1
1422	<i>Sporobolus fimbriatus</i>	dropseed	13,440	19.3	64.8
820	<i>Sporobolus wrightii</i>	big sacaton	900,000+	0.3	1.0
1879	<i>Strophostyles helvola</i>	trailing wildbean	4,500	57.7	193.0
389	<i>Trichachne californica</i>	Arizona cottontop	258,300	1.0	3.3
12	<i>Trichloris crinata</i>	twoflower trichloris	557,100	0.46	1.56
355	<i>Trichloris pluriflora</i>	fourflower trichloris	432,000	0.60	2.0

A few samples of seed are tested each year by the Texas Department of Agriculture, Seed Technology Laboratory at Austin. The purpose of this is to check our germination results. Results of their tests are shown in the following table.

PMT-10 Selection 75 kleingrass - Lot #2

<u>Pure seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
98.82	1.18	.00	.00	70	.00
99.62	.38	.00	.00	63	.00

PMT-10 Selection 75 kleingrass - Lot #1

<u>Pure Seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
99.61	.39	.00	.00	72	.00
99.38	.62	.00	.00	66	.00

PMT-802 Indiangrass

<u>Pure Seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
83.18	16.82	.00	.00	60	.00

PMT-335 Indiangrass

<u>Pure Seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
86.75	13.25	.00	.00	78	.00

Germination Studies, cont'd

PMT-279 Switchgrass

<u>Pure seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
99.88	.12	.00	.00	68	.00

PMT-785 Switchgrass

<u>Pure seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
99.80	.20	.00	.00	68	.00

PMT-788 Switchgrass

<u>Pure seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
96.55	3.45	.00	.00	86	.00

PMT-587-J Old world bluestem

<u>Pure Seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
57.56	42.44	.00	.00	63	.00

PMT-588-F Caucasian bluestem

<u>Pure seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
58.39	41.61	.00	.00	76	.00

PMT-338 'Mason' sandhill lovegrass

<u>Pure Seed</u>	<u>Inert Matter</u>	<u>Other Crop Seed</u>	<u>Weed Seed</u>	<u>Germ.</u>	<u>Hard Seed</u>
99.47	.53	.00	.00	75	.00

VI. Soil Temperature Studies

Soil temperatures were recorded during the months prior to spring planting. Three readings were taken; (1.) 3" depth on bare soil (2.) 3" depth with buffalo grass cover (3.) 6" depth on bare soil. The spring of 1971 readings were as follows:

Soil Temperatures at 0800 AM

<u>Date</u>	<u>3" Bare Soil (Degrees)</u>	<u>3" With Cover (Degrees)</u>	<u>6" Bare Soil (Degrees)</u>
3-22	45	49	56
3-22	44	48	54
3-26	48	49	52
3-29	57	52	59
3-31	55	54	61
4-2	45	50	57
4-5	45	49	56
4-7	43	48	54
4-9	66	62	66
4-12	68	60	68
4-14	64	60	66
4-16	62	60	66
4-19	61	61	64
4-21	58	54	60
4-23	58	59	65
4-26	64	65	71
4-28	60	62	69
4-30	60	64	70
5-3	60	62	71
5-5	63	64	69
5-7	62	66	70
5-10	60	62	70
5-12	58	61	69
5-14	58	58	68
5-17	68	72	76
5-19	64	44	73
5-21	69	69	77
5-24	63	61	76
5-26	72	67	78
5-28	67	70	76
5-31	68	66	72
6-2	74	71	79
6-4	71	70	78
6-7	68	69	76
6-9	71	72	81
6-11	74	73	81
6-14	70	71	80
6-16	72	72	80
6-18	76	72	83
6-21	72	72	81
6-23	70	73	80
6-25	75	73	80

SPECIAL STUDIES

During the summer of 1971 there were several study projects carried out by the Plant Materials Specialist. They will appear in the Plant Materials Specialists' report.

Those conducted off the Center include an observational area at Prairie View A & M at Abilene Christian College, at Clarendon and many others.

Cooperative studies with ARS at Bushland includes protein analysis of different plants being produced at the Center.

Dr. Bashaw ARS, College Station, continued his screening of buffel grasses for winter hardiness here on the Center. A total of 1980 individual space planted plants were established on the Center in the spring of 1971. The two accessions TAM-331 and 1835 were increased in 1970 but failed to survive the 1971 winter.

Atriplex canescens (Pursh.) Nutt.

Fourwing saltbush Atriplex canescens (Pursh.) Nutt. is a native evergreen shrub. It will grow on saline soils and is a valuable browse plant for livestock and wildlife. A .1 acre initial increase planting was planted in the spring of 1971. It resulted in a poor stand. It was noted that all of the plants that survived were males except one. A new study was started in 1972 using PMT-2086 and PMT-1041, the two best strains, to determine which accession produced the most female plants from seed. PMT-1041 has been established in several rod row plantings and resulted a majority male plants.

Method of harvest will be studied along with male-female ratio between the two accessions.

Leucaena retusa Benth.

Littleleaf leadtree Leucaena retusa Benth. is a small leguminous tree native to the Edwards Plateau and Trans-Pecos mountains and basins. It is valuable browse plant for domestic livestock and wildlife and could be used as a beautification plant. It is being studied in order to determine the best method of harvest. A report will follow at the conclusion of the study.

SPECIAL STUDIES, cont'd

Eysenhardtia texana Scheele.

Texas kidneywood Eysenhardtia texana Scheele. is a deciduous leguminous shrub native to Central Texas. It is a valuable browse plant throughout its natural range. A special inoculant was prepared by Dr. Joe Burton, head of the Nitrogen Company in Milwaukee, Wisconsin. Texas kidneywood is being studied to find the best harvest method and method of establishment under field conditions. To date it has been a very difficult plant to work with. A report will follow at the conclusion of the study.

Viguiera stenoloba Blake

Skeletonleaf goldeneye Viguiera stenoloba Blake is a deciduous shrub native to the Trans-Pecos mountains and basins. It has value as a wildlife and livestock browse plant. It normally produces good quantities of seed but we have had difficulty getting germination in the germinator and in the field. A study is being conducted to establish the most economical way of harvest and establishment in field conditions.

SPECIAL STUDIES

Arundo donax L.I. INTRODUCTION:

Giant reedgrass Arundo donax L. is a warm season perennial, rhizomatous, introduced grass. It does not make seed and has been propagated by rhizomes for many years. It has value for use in critical area stabilization.

II. OBJECTIVE:

To study vegetative propagation of giant reedgrass to determine (1.) if canes of giant reedgrass could be planted horizontal and/or upright during the dormant period (2.) when they could be planted with the greatest success (3.) what depth would insure the greatest success.

III. METHOD:

Canes of giant reedgrass were cut from a large stand located on FM-143 about one mile east of the Brazos river bridge. The mature canes were cut into 6 joint lengths and planted horizontal in a trench 2 inches, 4 inches, and 6 inches deep. These were replicated 3 times with one replication being irrigated as needed.

TABLE I

Three Years of Data

The following tables show number of joints rooted, height and number of culms produced on 6 joint culms planted horizontal with 2" of cover. Planting dates for 1969, 1970, 1971 and spring of 1972 are also shown.

<u>Date Planted - October 69,70,71</u>				<u>Date Planted - November 69,70,71</u>				<u>Date Planted - December 69,70,71</u>			
<u>Date</u>	<u>Number</u>		<u>Number</u>	<u>Date</u>	<u>Number</u>		<u>Number</u>	<u>Date</u>	<u>Number</u>		<u>Number</u>
	<u>Nodes</u>	<u>Height</u>			<u>Nodes</u>	<u>Height</u>			<u>Nodes</u>	<u>Height</u>	
	<u>Rooted</u>		<u>Culms</u>		<u>Rooted</u>		<u>Culms</u>		<u>Rooted</u>		<u>Culms</u>
10-1-69	2	12"	9	11-1-69	1	30"	9	12-1-69	2	30"	6
10-1-69	0	0	0	11-1-69	0	0	0	12-1-69	0	0	0
10-1-69	0	0	0	11-1-69	0	0	0	12-1-69	0	0	0
10-1-70	0	0	0	11-5-70	0	0	0	12-4-70	1	54"	10
10-1-70	0	0	0	11-5-70	2	24"	20	12-4-70	1	31"	6
10-1-70	0	0	0	11-5-70	2	24"	17	12-4-70	2	32"	17
10-4-71	0	0	0	11-1-71	0	0	0	12-6-71	2	12"	10
10-4-71	0	0	0	11-1-71	0	0	0	12-6-71	1	24"	9
10-4-71	0	0	0	11-1-71	0	0	0	12-6-71	1	24"	10
<u>Date Planted - January 70,71,72</u>				<u>Date Planted - February 70,71,72</u>				<u>Date Planted - March 1,70,71,72</u>			
1-2-70	0	0	0	2-3-70	2	30"	5	3-3-70	0	0	0
1-2-70	1	12"	2	2-3-70	2	16"	4	3-3-70	2	16"	4
1-2-70	3	20"	7	2-3-70	0	0	0	3-3-70	2	30"	13
1-6-71	0	0	0	2-3-71	0	0	0	3-3-71	0	0	0
1-6-71	0	0	0	2-3-71	0	0	0	3-3-71	0	0	0
1-6-71	0	0	0	2-3-71	0	0	0	3-3-71	0	0	0
1-10-72	2	12"	11	2-3-72	0	0	0	3-3-72	0	0	0
1-10-72	1	20"	7	2-3-72	0	0	0	3-3-72	0	0	0
1-10-72	1	24"	10	2-3-72	0	0	0	3-3-72	0	0	0
<u>Date Planted - April 1,70,71,72</u>				<u>Date Planted - April 15,70,71,72</u>				<u>Dated Planted - May 1,70,71,72</u>			
4-1-70	1	15"	2	4-15-70	0	0	0	5-1-70	0	0	0
4-1-70	2	14"	9	4-15-70	0	0	0	5-1-70	0	0	0
4-1-70	0	0	0	4-15-70	0	0	0	5-1-70	0	0	0
4-1-71	0	0	0	4-15-71	0	0	0	5-1-71	0	0	0
4-1-71	0	0	0	4-15-71	0	0	0	5-1-71	0	0	0
4-1-71	0	0	0	4-15-71	0	0	0	5-1-71	0	0	0
4-6-72	0	0	0	4-17-72	0	0	0	5-2-72	0	0	0
4-6-72	0	0	0	4-17-72	0	0	0	5-2-72	0	0	0
4-6-72	0	0	0	4-17-72	0	0	0	5-2-72	0	0	0
<u>Date Planted - May 15,70,71,72</u>				<u>Date Planted - June 1,70,71,72</u>							
5-15-70	0	0	0	6-1-70	0	0	0				
5-15-70	0	0	0	6-1-70	0	0	0				
5-15-70	0	0	0	6-1-70	0	0	0				
5-15-71	0	0	0	6-1-71	0	0	0				
5-15-71	0	0	0	6-1-71	0	0	0				
5-15-71	0	0	0	6-1-71	0	0	0				
5-15-72	0	0	0	6-1-72	0	0	0				
5-15-72	0	0	0	6-1-72	0	0	0				
5-15-72	0	0	0	6-1-72	0	0	0				

SPECIAL STUDIES - Arundo donax - cont'd

TABLE II

Three Years of Data

The following tables show number of joints rooted, height and number of culms produced on 6 joint culms planted horizontal with 4" of cover. Planting dates for 1969, 1970, 1971 and spring of 1972 are also shown.

Date Planted - October 69,70,71

Date	Number		Number Culms
	Nodes Rooted	Height	
10-1-69	2	40"	4
10-1-69	0	0	0
10-1-69	0	0	0
10-1-70	0	0	0
10-1-70	0	0	0
10-1-70	0	0	0
10-4-71	2	12"	9
10-4-71	0	0	0
10-4-71	0	0	0

Date Planted - November 69,70,71

Date	Number		Number Culms
	Nodes Rooted	Height	
11-1-69	3	40"	5
11-1-69	0	0	0
11-1-69	1	40"	1
11-5-70	1	32"	2
11-5-70	0	0	0
11-5-70	2	54"	9
11-1-71	0	0	0
11-1-71	0	0	0
11-1-71	0	0	0

Date Planted - December 69,70,71

Date	Number		Number Culms
	Nodes Rooted	Height	
12-1-69	0	0	0
12-1-69	2	40"	6
12-1-69	2	30"	11
12-4-70	0	0	0
12-4-70	0	0	0
12-4-70	2	108"	12
12-6-71	2	36"	11
12-6-71	2	40"	17
12-6-71	0	0	0

Date Planted - January 70,71,72

1-2-70	0	0	0
1-2-70	2	24"	4
1-2-70	0	0	0
1-6-71	0	0	0
1-6-71	0	0	0
1-6-71	0	0	0
1-10-72	2	20"	7
1-10-72	2	36"	11
1-10-72	0	0	0

Date Planted - February 70,71,72

2-3-70	2	20"	4
2-3-70	2	40"	6
2-3-70	2	40"	18
2-3-71	0	0	0
2-3-71	0	0	0
2-3-71	0	0	0
2-3-72	0	0	0
2-3-72	0	0	0
2-3-72	0	0	0

Date Planted - March 1,70,71,72

3-3-70	0	0	0
3-3-70	2	36"	19
3-3-70	1	36"	13
3-3-71	0	0	0
3-3-71	0	0	0
3-3-71	0	0	0
3-3-72	0	0	0
3-3-72	0	0	0
3-3-72	0	0	0

Date Planted - April 1,70,71,72

4-1-70	1	15"	2
4-1-70	0	0	0
4-1-70	0	0	0
4-1-71	0	0	0
4-1-71	0	0	0
4-1-71	0	0	0
4-6-72	0	0	0
4-6-72	0	0	0
4-6-72	0	0	0

Date Planted - April 15,70,71,72

4-15-70	0	0	0
4-15-70	0	0	0
4-15-70	0	0	0
4-15-71	0	0	0
4-15-71	0	0	0
4-15-71	0	0	0
4-17-72	0	0	0
4-17-72	0	0	0
4-17-72	0	0	0

Date Planted - May 1, 70,71,72

5-1-70	0	0	0
5-1-70	0	0	0
5-1-70	0	0	0
5-1-71	0	0	0
5-1-71	0	0	0
5-1-71	0	0	0
5-2-72	0	0	0
5-2-72	0	0	0
5-2-72	0	0	0

Date Planted - May 15,70,71,72

5-15-70	0	0	0
5-15-70	0	0	0
5-15-70	0	0	0
5-15-71	0	0	0
5-15-71	0	0	0
5-15-71	0	0	0
5-15-72	0	0	0
5-15-72	0	0	0
5-15-72	0	0	0

Date Planted - June 1,70,71,72

6-1-70	0	0	0
6-1-70	0	0	0
6-1-70	0	0	0
6-1-71	0	0	0
6-1-71	0	0	0
6-1-71	0	0	0
6-1-72	0	0	0
6-1-72	0	0	0
6-1-72	0	0	0

SPECIAL STUDIES - Arundo donax - cont'd

TABLE III

Three Years of Data

The following tables show number of joints rooted, height and number of culms produced on 6 joint culms planted horizontal with 6" of cover. Planting dates for 1969, 1970, 1971 and spring of 1972 are also shown.

Date Planted - October 69,70,71

Date	Number		Number
	Nodes	Height	
	Rooted		Culms
10-1-69	1	30"	3 *
10-1-69	0	0	0
10-1-69	0	0	0
10-1-70	0	0	0 *
10-1-70	0	0	0
10-1-70	0	0	0
10-4-71	2	24"	12 *
10-4-71	0	0	0
10-4-71	0	0	0

Date Planted - November 69,70,71

Date	Number		Number
	Nodes	Height	
	Rooted		Culms
11-1-69	1	20"	2 *
11-1-69	0	0	0
11-1-69	2	35"	2
11-5-70	1	23"	1 *
11-5-70	1	96"	14
11-5-70	3	84"	12
11-1-71	0	0	0 *
11-1-71	0	0	0
11-1-71	0	0	0

Date Planted - December 69,70,71

Date	Number		Number
	Nodes	Height	
	Rooted		Culms
12-1-69	3	40"	4 *
12-1-69	1	30"	4
12-1-69	3	30"	7
12-4-70	0	0	0 *
12-4-70	2	108"	14
12-4-70	1	78"	12
12-6-71	3	36"	10 *
12-6-71	2	30"	9
12-6-71	1	24"	8

Date Planted - January 70,71,72

1-2-70	1	35"	4 *
1-2-70	2	24"	8
1-2-70	1	36"	4
1-6-71	1	36"	8 *
1-6-71	2	30"	9
1-6-71	3	20"	20
1-10-72	1	20"	10 *
1-10-72	2	20"	10
1-10-72	2	20"	10

Date Planted - February 70,71,72

2-3-70	2	30"	4
2-3-70	1	36"	5
2-3-70	1	30"	4
2-3-71	0	0	0
2-3-71	0	0	0
2-3-71	0	0	0
2-3-72	0	0	0
2-3-72	0	0	0
2-3-72	0	0	0

Date Planted - March 1,70,71,72

3-3-70	0	0	0
3-3-70	0	0	0
3-3-70	1	40"	9
3-3-71	0	0	0
3-3-71	0	0	0
3-3-71	0	0	0
3-3-71	0	0	0
3-3-72	0	0	0
3-3-72	0	0	0
3-3-72	0	0	0

Date Planted - April 1,70,71,72

4-1-70	1	20"	1
4-1-70	0	0	0
4-1-70	2	14"	5
4-1-71	0	0	0
4-1-71	0	0	0
4-1-71	0	0	0
4-6-72	0	0	0
4-6-72	0	0	0
4-6-72	0	0	0

Date Planted - April 15,70,71,72

4-15-70	0	0	0
4-15-70	1	10"	0
4-15-70	0	0	0
4-15-71	0	0	0
4-15-71	0	0	0
4-15-71	0	0	0
4-17-72	0	0	0
4-17-72	0	0	0
4-17-72	0	0	0

Date Planted - May 1, 70,71,72

5-1-70	0	0	0
5-1-70	1	24"	7
5-1-70	1	24"	7
5-1-71	0	0	0
5-1-71	0	0	0
5-1-71	0	0	0
5-2-72	0	0	0
5-2-72	0	0	0
5-2-72	0	0	0

Date Planted - May 15,70,71,72

5-15-70	0	0	0
5-15-70	0	0	0
5-15-70	0	0	0
5-15-71	0	0	0
5-15-71	0	0	0
5-15-71	0	0	0
5-15-72	0	0	0
5-15-72	0	0	0
5-15-72	0	0	0

Date Planted - June 1,70,71,72

6-1-70	0	0	0
6-1-70	0	0	0
6-1-70	0	0	0
6-1-71	0	0	0
6-1-71	0	0	0
6-1-71	0	0	0
6-1-72	0	0	0
6-1-72	0	0	0
6-1-72	0	0	0

* Irrigated as needed.

SUMMARYTABLE IV

The following table shows planting dates and number of sprouts on 6 joint canes planted horizontal 2", 4" and 6" inches deep for the dormant periods October 69-70, 70-71 and 71-72 period.

<u>Date Planted</u>	<u>No Sprouts 2" depth</u>	<u>No Sprouts 4" depth</u>	<u>No Sprouts 6" depth</u>	<u>Total</u>	<u>Rank</u>
10-1	2	4	3	9	5
11-1	3	7	6	16	3
12-1	10	10	16	36	1
1-1	8	6	15	29	2
2-1	4	6	4	14	4
3-1	4	3	1	8	6
4-1	3	1	2	6	7
4-15	0	0	1	1	9
5-1	0	0	2	2	8
5-15	0	0	0	0	-
6-1	0	0	0	0	-
Total	34	37	50		
Rank	3	2	1		

IV. RESULTS:

The summary shows that December plantings at a six inch depth were consistantly better. January plantings at the six inch depth was second best at Knox City.

Gulms planted in October and November had to be stripped of leaves. The buds, located on the inside curvature at each node of the canes were not hardened (matured) sufficiently to obtain consistant rooting.

By December 1, the buds were a brownish green color and produced vigorus shoots from the highest percent of nodes. This held true in January plantings except if there had been sufficient cold damage, buds had to be sorted. This was done by touching the buds and if they had been killed by cold they readily disarticulated from the cane. Using this procedure the number of rooted nodes was lower in the January plantings than in the December plantings. Table 4 shows a total of 36 rooted nodes for the three years for December plantings compared at 29 rooted nodes for the January plantings. Irrigation did not appear to be a significant factor.

During the winter of 1971-1972 a new planting depth with 8 inches of cover was tried. These were interplanted and irrigated along with the other depth plantings. These failed as shown in Table 5 below. Two of the nodes put up shoots that reached the soil surface then aborted. Apparently all of the reserve energy was used befor the leaf blades reached sunlight to help build roots.

SPECIAL STUDIES - Arundo donax - cont'd

TABLE V

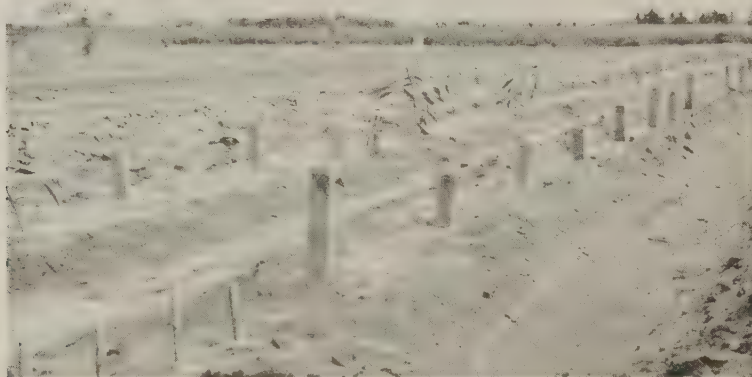
One Year Data

Table 5 shows number of joints rooted, height of foliage, and number of canes produced on 6 joint canes planted horizontal with 8 inches of cover. Notes were read 7-3-72.

<u>Date Planted</u>	<u>Number of Nodes rooted</u>	<u>Height of Foliage</u>	<u>Number of Culms</u>
10-4-72	0	0	0
11-1-71	0	0	0
12-6-71	0 SD*	0	0
1-10-72	0 SD*	0	0
2-3-72	0	0	0
3-3-72	0	0	0
4-6-72	0	0	0
4-17-72	0	0	0
5-2-72	0	0	0
5-16-72	0	0	0
6-1-72	0	0	0

* SD - Sprouted and Died.

During the same period 1969-1971, 10 canes were cut into lengths containing two joints each. These were planted upright at a slight angle with one node left above ground and the cane extending approximately eight inches in the soil. They were irrigated as needed. There were only five of them rooted out of a possible 330 planted during the three year study.



Te-13271-6 Giant cane study area showing 10 2-joint upright canes in the foreground and plants resulting from horizontal planting of 6-joint canes in the background.

SPECIAL STUDIES

Panicum obtusum - vine mesquite

I. INTRODUCTION:

Vine mesquite Panicum obtusum H.B.K. is a native perennial low growing grass with long stolens. It is found growing in sandy or gravelly soils, mostly overflow areas where it received extra moisture.

Vine mesquite PMT-327 was collected near Van Horn, Texas in 1964. A seed production block was established in C-1 block on the Center in 1966.

In 1966 and 1967 the block produced very few viable seed.

II. OBJECTIVES:

To find a management technique that would induce seed formation.

III. PLOT DESIGN:

The original seed production field was divided into 9 study areas .0282 acres in size. Each study plot was level with a border between plots.

IV. TREATMENT:

A combination of irrigation water and fertilizer was applied leaving one block untreated as a check. Treatments and results for 1969, 1970, 1971 are tabulated in the following chart:

Plot No.	Size	<u>TREATMENT</u>		<u>IRRIGATION 4" APPLIED</u>		<u>SEED YIELD/ACRE</u>		
		<u>Fertilizer</u>	<u>Date</u>	<u>Date</u>	<u>Dates Applied</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
1	.0282	None	None	None	None	4#	4.8#	4.8#
2	.0282	45# Amonium nitrate	7-1	7-15	April 1, June 1, August 1, September 1	15#	11.5#	43.5#
		45# Phosphorous	4-15	-				
3	.0282	45# Amonium nitrate	4-15	7-15	April 1, August 1, September 1	18#	24.2#	11.5#
		45# Phosphorous	4-15	-				
4	.0282	45# Amonium nitrate	4-15	7-15	April 1, June 1, July 1, August 1, Sept. 1	22#	8.7#	53#
		90# Phosphorous	4-15	-				
5		45# Amonium sulphate	4-15	7-15	April 1, June 1, July 1, August 1, Sept. 1	25#	19.3#	33.8#
		90# Phosphorous	3-1	7-15				
6	.0282	45# Nitrogen sulphate	4-15	7-15		21#	12#	5.8#
		45# Phosphorous	4-15	7-15				
7	.0282	45# Phosphorous	4-15	-	April 15, June 1, July 1, August 1, Sept. 1	12#	11#	11.5#
8	.0282	45# Nitrogen sulphate	3-1	7-15	April 15, August 1, September 1	9.5#	8.2#	11.5#
		45# Phosphorous	4-15	-				
9	.0282	90# Nitrogen sulphate	4-15	7-15	April 15, August 1, September 1	35#	33.3#	62.8#

V. RESULTS:

The high yield, 62.8 pounds of firm seed per acre, was obtained from study area 9, using a split application of amonium sulphate. The amonium sulphate was applied at a rate of 90 pounds of available nitrogen per acre April 15 and July 15 each year. Four inches of irrigation water was applied April 15, August 1 and September 1 regardless of rainfall. This was a total of 180 pounds of available nitrogen per acre per year.

Seed samples were collected from 3 random, 1 foot square, plots in each study area.

Plot 9, with the annual application of 180 pounds of available nitrogen per acre continued to produce vegetatively after seed set. At harvest time the seed heads were completely obscured by vegetative growth and it is doubtful if it could have been harvested with a combine. Seed yield was consistently higher in plot 9 under this treatment.

Twenty-eight new accessions of vine mesquite were collected across Texas and Oklahoma. They will be planted in peat pots in the rooting bed and space planted for study. Hopes are that an ecotype with inherited seed producing characteristics can be found.

SEED PRODUCTION FIELDS, 1971

<u>PMT</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>PMC</u>	<u>ACRE</u>	<u>1971 PRODUCTION</u>	<u>PROBLEM AREA</u>
662	Agropyron smithii	western wheatgrass	Tahoka	H	1.00	36	II, X, IV
905	Agropyron smithii	western wheatgrass	Floydada	I	.95	19	II, X, IV
333	Andropogon barbinoides	cane bluestem	Van Horn	H	.40	125	VIII
588	Andropogon caucasicus	caucasian bluestem	Commercial	A-66	1.00	87	V, XIX
588	Andropogon caucasicus	caucasian bluestem	Commercial	A-71	1.00	155	V, XIX
588	Andropogon caucasicus	caucasian bluestem	Commercial	F-71	1.5	177	V, XIX
1482	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	35	III
1482A	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	19	III
1482B	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	16	III
1482C	Andropogon hallii	sand bluestem	Elk City, Okla.	G-1	.10	3½	III
1041	Atriplex canescens	fourwing saltbush	Knox City, Texas	C	.10	4½	IV, VII, XVII
201	Bouteloua curtipendula	sideoats grama	Throckmorton, Tex.	L	.75	210	XV
328	Bouteloua curtipendula	sideoats grama	Van Horn, Texas	I	1.00	585	II, XV
470	Bouteloua curtipendula	sideoats grama	Haskell, Texas	L	.75	210	XV
697	Bouteloua gracilis	bluegrama	Aspermont, Texas	I	1.00	130	XV
1221	Bouteloua gracilis	bluegrama	Waurika, Okla.	H	1.00	98	XV
1181	Buchloe dactyloides	buffalograss	ARS, Okla.	C	1.00	950	XVI, XIX
711	Chloris cuculata	hooded windmillgrass	Mason, Texas	J	.10	21	XI
2408	Desmanthus (depressus) virgatus	bundleflower	Victoria, Texas	G-2	.05	27	XI
587	Dicanthium sp.	old world bluestem	Near East	A	.55	100	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	F	.50	13	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	E-66	1.00	117	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	E-71	1.00	33	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	J-70	1.00	168	VI, V, XIX
587	Dicanthium sp.	old world bluestem	Near East	J-71	.50	23	VI, V, XIX
1198	Elymus sabulosus	wild rye	USSR	G	.05	19	XIX
874	Engelmannia pinnatifida	engelmann daisy	Eldorado, Texas	F	.55	110	XII, XVI, XVII
718	Eragrostis curvula	weeping lovegrass	South Africa	I-K	1.00	22	V
729	Eragrostis curvula	weeping lovegrass	South Africa	I	.95	110	V
732	Eragrostis lehmanniana	lehmann lovegrass	South Africa	H	.50	21	IV

SEED PRODUCTION FIELDS, 1971, cont'd

PMT	SCIENTIFIC NAME	COMMON NAME	ORIGIN	PMC	ACRE	1971 PRODUCTION	PROBLEM AREA
732	Eragrostis lehmanniana	lehmann lovegrass	South Africa	F	.50	116	IV
2121	Eragrostis superba	Wilman lovegrass	South Africa	L	.30	100	V
338	Eragrostis trichoides	sand lovegrass	Mason, Texas	K	1.00	227 F	XV
1564	Helianthus maxmiliani	maximilian sunflower	Texas Composite	F	.30	28	XII, XVI, XVII
1051	Indigofera leptosepala	western indigo	Knox City, Texas	G-2	.30	50	XII, XVII
862	Mendora longiflora	showy mendora	Brackettville, Texas	G	.55	16	XII
10 F	Panicum coloratum	Sel. 75 kleingrass (foundation)	South Africa	H	.80	19 FEP	V
1480	Panicum havardi	havard panicum	Monahans, Texas	C	.10	9	XI
2245	Panicum havardi	havard panicum	Monahans, Texas	G	.05	9	XI
279	Panicum virgatum	switchgrass	Sutherland Springs	J-68 plt	.50	111	V, VI, XVII, XV, XVIII, XIX
279	Panicum virgatum	switchgrass	Sutherland Springs	J-70 plt	.50	70	V, VI, XVII, XV, XVIII, XIX
785	Panicum virgatum	switchgrass	Hallettsville, Tex.	K	1.00	285	V, VI, XVII, XV, XVIII, XIX
788	Panicum virgatum	switchgrass	George West, Texas	L	.55	156	V, VI, XVII, XV, XVIII, XIX
331	Pennisetum ciliare (TAM)	buffelgrass	Texas A & M	H	.10	5	V
1881	Rhynchosia minima	least snoutbean	Victoria, Texas	C	.075	55	XII
856	Simsia sp.	bushsunflower	Junction, Texas	G	.55	108	XII, XVII
802	Sorghastrum nutans	indiangrass	Lampasas, Texas	K	.75	250	XV, V
335	Sorghastrum nutans	indiangrass	Hamilton, Texas	L	.20	108	XV, V
326	Sporobolus airoides	alkali sacaton	Kenedy Co.	I	.20	6	VII, XV, XIII
1733	Sporobolus airoides	alkali sacaton	Sayre	J	.40	117	VII, XV, XIII
1422	Sporobolus fimbriatus	dropseed	So. Africa	J	.05	13	V
820	Sporobolus wrightii	big sacaton	Falfurrias, Texas	L	.50	78	VII
1879	Strophostyles helvola	trailing wildbean	Victoria, Texas	F	.10	97	XII
2637	Tricholaena rosa	natalgrass	Pearsall, Texas	E	.10	57	XVI
389	Trichachne californica	Arizona cottontop	Van Horn, Texas	H	.55	210	IX, VI, XV
12	Trichloris crinita	twoflower trichloris	Brackettville, Tex.	L	.30	33	VI, VII
355	Trichloris pluraflora	fourflower trichloris	Raymondville, Tex.	K	.20	42	XV

RHIZOME AND PLANT PRODUCTION - 1971

<u>PMT</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ORIGIN</u>	<u>PMC</u>	<u>NUMBER</u>	<u>PROBLEM AREA</u>
2297	Amorpha fruticosa	indigobush	Gainesville, Tex.	B	2300 plants	XVIII
2298	Amorpha fruticosa	indigobush	Stanton, Nebraska	B	400 plants	XVIII
2299	Amorpha fruticosa	indigobush	Talihina, Oklahoma	B	915 plants	XVIII
2468	Amorpha fruticosa	indigobush	Bowie, Texas	B	2970 plants	XVIII
2469	Amorpha fruticosa	indigobush	Knox City, Texas	B	50 plants	XVIII
2470	Amorpha fruticosa	indigobush	Muenster, Texas	B	1000 plants	XVIII
2392	Cephalanthus occidentalis	buttonbush	Washington, Oklahoma	C	300 plants	XVIII
2394	Panicum hemitomon	maidencane	Miss. PMC	C	10,000 rhizomes	XVIII
2376	Phragmites communis	common reedgrass	Lawrence, Texas	C	14,000 rhizomes	XVIII
2380	Phragmites communis	common reedgrass	Anahuac, Texas	C	500 rhizomes	XVIII
2372	Salix interior	sandbar willow	Miss. PMC	C	100 plants	XVIII
2437	Salix interior	sandbar willow	Clinton, Oklahoma	C	80 plants	XVIII
2792	Salix interior	sandbar willow	Knox City, Texas	C	2000 plants	XVIII
2386	Rosa wichurria	wichurria rose	NPMC	C	2500 whips	XVIII

SEED & PLANT DISTRIBUTION

BULK SHIPMENTS

A total of 5283 pounds of seed, 7526 plants, 8470 rhizomes, 100 whips and 190 packets of seed were distributed in Texas and Oklahoma and other Plant Materials Centers in 1971. Plants and rhizomes were used on watershed structures for wave action control in Texas and Oklahoma.

Abilene Area

buffalograss - 35#
sideoats grama - 400#
'Mason' sandhill lovegrass - 50#
western wheatgrass - 300#

Alice Area

alkali sacaton - 11#
fourflower trichloris - 50#

Amarillo Area

buffalograss - 100#
alkali sacaton - 15#
reseeding peanut - 10#
Sel. 75 kleingrass - 13#
phasmea bean - 1 $\frac{1}{4}$ #
wild reseeding soybean - 40#
western indigo - 10#
foxtail millet - 5#
bush sunflower - 6#
maximillian sunflower $\frac{1}{2}$ #

Austin Area

old world bluestem 75#

Brownwood Area

'Mason' sandhill lovegrass - 50#
indiangrass - 50#

Big Springs Area

Lehmann lovegrass - 15#
buffalograss - 120#
alkali sacaton - 10#

Corsicana Area

dove proso - 140#

Denton Area

switchgrass - 8#
common reedgrass - 3000 rhizomes
indigobush - 750 plants
switchgrass - 100 culms
sandbar willow - 700 plants
sandbar willow - 100 whips

Fredricksburg Area

engelmann daisy - 5#
sideoats grama - 100#
'Mason' sandhill lovegrass - 50#

Gainesville Area

switchgrass - 14#
common reedgrass - 3000 rhizomes
indigobush - 700 plants
sandbar willow - 650 plants
Packets - 1

Harlingen Area

big sacaton - 50#
old world bluestem - 25#
Arizona cottontop - 120#
buffelgrass - 6#

Lubbock Area

buffalograss - 80#
Arizona cottontop - 80#
big sacaton - 20#

Mt. Pleasant Area

Packets - 9

Nacogdoches Area

'Interstate' lespedeza - 20#
'Chiwapa' Japanese millet - 100#
reseeding soybean - 50#
bermuda grass - 780 sprigs

Seed Distribution, cont'd

Pampa Area

Caucasian bluestem - 10#
Wilman lovegrass - $\frac{1}{2}$ #
lehmann lovegrass - $\frac{1}{2}$ #
buffalograss - 475#
old world bluestem - 1#
Wilmington bahia - 1#
Packets - 19

Pecos Area

sideoats grama - 50#
whiplash pappus - 200#
alkali sacaton - 60#

San Angelo Area

cane bluestem - 40#
engelmann daisy - 5#
old world bluestem - 25#
indiangrass - 50#

San Marcos Area

Packets - 4

Stephenville Area

dove proso - 140#

Temple Area

indiangrass - 160#
switchgrass - 100#

Terrell Area

indigobush - 300 plants
sandbar willow - 300 plants
common reedgrass - 2400 rhizomes
Selection 75 kleingrass - 2#
'Wintergreen' hardinggrass - 2#
Packets - 31

Uvalde Area

switchgrass - 3#
havard panicum - 1#
Wilman lovegrass - $\frac{1}{2}$ #
silky bluestem - 1#
fourflower trichloris - 1#
indiangrass - 1#
pinhole bluestem - 80#
sideoats grama - 50#

Vernon Area

buffalograss - 15#
Packets - 10

Victoria Area

switchgrass - 160#
twoflower trichloris 10#
weeping lovegrass - 20#

Georgia PMC

indigo bush - 30 plants
indiangrass - 5#
'Wintergreen' hardinggrass - 170 plants
Packets - 1

Florida PMC

indigo bush - 30 plants

Kansas PMC

indigobush - 300 plants
wichuria rose - 150 plants

Kentucky PMC

Caucasian bluestem - 1#

Mississippi PMC

tall grama - 1#
silky bluestem - 2#
lehmann lovegrass - $\frac{1}{2}$ #
wolftail - $\frac{1}{2}$ #
maximilian sunflower - 1#
switchgrass - 10#
Caucasian bluestem - 20#
old world bluestem 25#
Packets - 9

Nebraska

wichuria rose - 50 plants
indigobush - 300 plants

New Mexico PMC

buffalograss - 10#
Selection 75 kleingrass - 150#

North Carolina - Districts

weeping lovegrass - 46#

Seed Distribution, cont'd

Oklahoma

'Wintergreen' hardinggrass - 24#
wichuria rose - 200 plants
sandbar willow - 320 plants
indigo bush - 1600 plants
buttonbush - 146 plants
buffalograss - 550#
alkali sacaton - 150#
Caucasian bluestem - 78#
sand bluestem - 25#
blue grama - 120#
bush sunflower - 1#
Arizona cottontop - 47#
engelmann daisy - 1#
maximilian sunflower - 1#

South Carolina-Districts

weeping lovegrass - 9#
sandbar willow - 5 plants
indigobush - 30 plants
common reedgrass - 40 rhizomes

Tennessee - Districts

indigo bush - 15 plants

National Plant Materials Center

pink pappus - 1#
tall grama - 1#
fourflower trichloris - 1#
'Higgins' buffelgrass - 1#
Selection 75 kleingrass - 31#
Packets - 12

Texas Organizations

Texas A & M - College Stations
bermuda grass - 30 rhizomes
Packets - 23

Texas A & M - 6666 Ranch

Arizona cottontop - 2#
buffalograss - 2#
cane bluestem - 2#
pinhole bluestem - 1#
sideoats grama - 3#
bluegrama - 1#
twoflower trichloris - 1#
Caucasian bluestem - 1#
old world bluestem - 1#
kleberg bluestem - 1#
Selection 75 kleingrass - 1/2#

Texas A & M - 6666 Ranch - cont'd

alkali sacaton - 1/2#

Texas A & M Pitchfork Ranch

sideoats grama - 2#
Arizona cottontop - 2#
old world bluestem - 1#
Caucasian bluestem - 1#
kleberg bluestem - 1#
'Mason' sandhill lovegrass - 1/2#
switchgrass - 1#
green sprangletop - 1#
indiangrass - 1#
sand bluestem - 1#
bush sunflower - 1/4#
western indigo - 1/4#
western wheatgrass - 2#
bluegrama - 2#
cane bluestem - 1#

Texas A & M Prairie view

Packets - 29

Texas Tech - Lubbock

sideoats grama - 2#
Packets - 4

Texas A & I, Kingsville

Packets - 20

Texas Department of Agriculture, Giddings

Wilmington bahia - 1/2#
indiangrass - 1/2#

Renner Foundation

Packets - 6

ARS Blacklands Station, Temple

Packets 5

ARS McGregor, Texas

Selection 75 kleingrass - 25#
Packets - 7

Seed Distributions, cont'd

ARS Weslaco, Texas

'Bell' rhodegrass - $\frac{1}{2}$ #

kleberg bluestem - $\frac{1}{2}$ #

Selection 75 kleingrass - $\frac{1}{2}$ #

twoflower trichloris - $\frac{1}{2}$ #

alkali sacaton - $\frac{1}{2}$ #

ARS Southern Great Plains Field Station

Woodward, Oklahoma

bluegrama - $\frac{1}{2}$ #

sideoats grama $\frac{3}{4}$ #



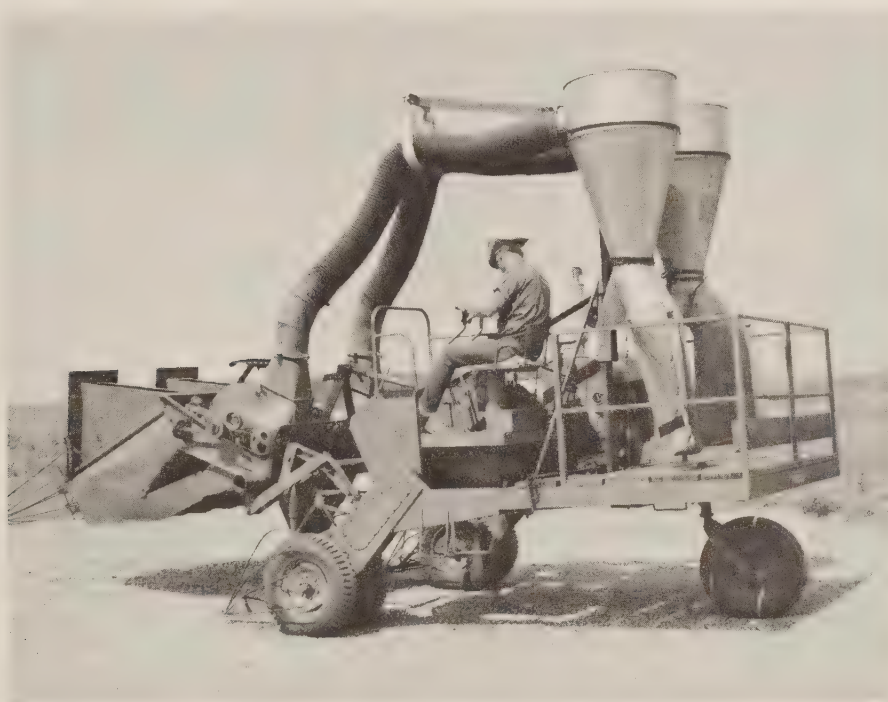
Te-12784-1 PMT-328 sideoats grama seed ready for blending.
Two harvests produced 585 pounds per acre.

Air-Transport Grass Seed Stripper

The air-transport grass seed stripper was used to harvest old world bluestems, cane bluestem, sideoats grama, fourflower trichloris, wilmann lovegrass, Arizona cottontop and indiagrasses. Excellent results were obtained on the Arizona cottontops, and twoflower trichloris, as no cleaning of seed material was needed. There were few stems and leaves; however the material was run through a hammermill to reduce them to a size to facilitate planting. Arizona cottontop and twoflower trichloris are next to impossible to harvest with a combine.

The sideoats grama and indiagrasses required a minimum of cleaning. These three along with the other grasses had a combine used for clean up of the remaining seed crop.

Seven different types of grasses were used to obtain data for comparative checks. The following table will show some comparative results.



Te-13305-6 Air-transport grass seed stripper.

AIR-TRANSPORT STRIPPER AND COMBINE HARVEST WEIGHTS

PMT	NAME	BLOCK	DATE OF STRIPPING OR COMBINING	HARVEST NUMBER	STRIPPING NUMBER PER HARVEST	BULK WEIGHT OF STRIPPED MATERIAL SCALPED	BULK WEIGHT OF COMBINED MATERIAL SCALPED	NET WEIGHT OF CLEAN SEED PER STRIPPING	NET WEIGHT OF CLEAN SEED COMBINE CHECK	% BULK MATERIAL TO CLEAN SEED
333	<u>Andropogon barbipodis</u> cane bluestem	H	6/14/71	1	1	6	--	3.5	--	
		H	6/16/71	1	1	8		5.5	--	
		H	6/23/71	1	1	10.5		10	--	
		H	6/28/71	1	1	4		2	--	
		H	7/3/71	1	-	-	75	-	17	
		H	9/29/71	2	1	32		22	--	
		H	10/8/71	2	-	-	101	-	65	
588	<u>Andropogon caucasicus</u> Caucasian bluestem	A	7/10/71	1	1	16.5		6.5	--	
		A	7/13/71	1	2	7.0		1.5	--	
		A	7/15/71	1	3	10.5		1.5	--	
		A	10/1/71	2	-	--	137	--	77.5	
470	<u>Bouteloua curtipendula</u> sideoats grama	L	7/26/71	1	1	64		55.5		67
		L	8/5/71	1	2	62		47.0		76
		L	8/23/71	1	3	52		38.0		73
		L	8/30/71	1	-	-	166	--	70.0	42
587	<u>Dichanthium sp.</u> old world bluestem	A	7/12/71	1	1	15		7.5	-	50
		A	7/15/71	1	2	6.5		2.5	-	39
		A	7/19/71	1	3	7.5		1.25	-	17
		A	7/21/71	1	4	5		.75	-	15
		A	7/26/71	1	-	-	30	-	5	16
		A	10/26/71	2	1	29.5		18.25	-	61
		A	11/1/71	2	2	41		20.5	-	50
		A	11/14/71	2	3	29		15	-	51
		A	11/10/71	2	4	27		10	-	37
		A	11/12/71	2	-	-	74	-	19.25	26
802	<u>Sorghastrum nutans</u> indiangrass	K	11/2/71	1	-	-	390	-	250	64

Air-transport Stripper and Combine Harvest Weights, cont'd

<u>PMT</u>	<u>NAME</u>	<u>BLOCK</u>	<u>DATE OF STRIPPING OR COMBINING</u>	<u>HARVEST NUMBER</u>	<u>STRIPPING</u>		<u>BULK WEIGHT OF STRIPPED MATERIAL SCALPED</u>	<u>BULK WEIGHT OF COMBINED MATERIAL SCALPED</u>		<u>NET WEIGHT OF CLEAN SEED PER STRIPPING</u>		<u>NET WEIGHT OF CLEAN SEED COMBINE CHECK</u>		<u>% BULK MATERIAL TO CLEAN SEED</u>
					<u>NUMBER</u>	<u>PER HARVEST</u>				<u>SEED</u>	<u>STRIPPING</u>	<u>SEED</u>	<u>CHECK</u>	
389	<u>Trichachne californica</u> <u>Arizona cottontop</u>	H	6/14/71	1	1		8.5	-	-	8.5	-	-	-	100
		H	6/18/71	1	2		25	-	-	25	-	-	-	100
		H	6/23/71	1	3		39	-	-	39	-	-	-	100
		H	6/25/71	1	4		16.5	-	-	16.5	-	-	-	100
		H	6/28/71	1	5		15.5	-	-	15.5	-	-	-	100
		H	9/3/71	2	1		18	-	-	18	-	-	-	100
		H	9/14/71	2	2		55.5	-	-	55.5	-	-	-	100
		H	9/28/71	2	3		20	-	-	20	-	-	-	100
		H	10/12/71	2	4		16	-	-	16	-	-	-	100
12	<u>Trichloris crinata</u> <u>twoflower trichloris</u>	L	7/12/71	1	1		3	-	-	3	-	-	-	100
		L	7/15/71	1	2		2	-	-	2	-	-	-	100
		L	8/4/71	1	3		4	-	-	4	-	-	-	100
		L	8/6/71	1	4		2	-	-	2	-	-	-	100
		L	8/19/71	1	5		2.5	-	-	2.5	-	-	-	100
		L	9/2/71	1	6		2.5	-	-	2.5	-	-	-	100
		L	12/13/71	2	-		-	-	-	-	-	-	17	100

INFORMATION PROGRAM

The information program was much the same as in previous years. Many groups and individuals visited the Center during 1971. In-service training was given on plant materials to summer student employees of the Soil Conservation Service. Indoctrination at the Center was part of their summer training.

Several news articles were released to the local newspaper.

Weekly Weather Observations - Knox County News
Major Storm Activities - Abilene Reporter News
Soil Temperature - Knox County News
(Bare Soil and with vegetative cover during
spring planting months.)

Fall and Spring Technical Committee meeting - Abilene Reporter News, Knox County News.

Two major articles - Farmer-Stockman - Dale Allen and the editor.
Major article - West Texas Livestock Weekly
Two major articles - Wichita Falls Record News
Two major articles - Abilene Reporter News



Te-12459-5 PM-Training - Group of new AC's and field people from Texas receiving a review of Center operations.

NEW EQUIPMENT

The Center received \$6000 in non-recurring funds to be spent on equipment in 1971.

The following items were purchased.

Camera, still picture, single lens reflex f/1.7 lens and case
400 MM SLR Lens

Close-up lens #1 & #2

Right angle viewfinder

Lens shade, 48 MM slip on

Extension tubes (set of 4)

Rooting Bed, 40' ft. long, 40 inches wide w/20 ft. of mist.
Intermittant timer and 24 hr. timer for mist.

Slide Projector - Karousel for 2" x 2" slide w/remote cord and
10 slide trays.

Screen, portable 50" x 50"

Tripod - Camera adjustable

Dehumidifying Room, 8 ft. x 19 ft. for packet seed storage equipped
w/surplus dehumidifier hygrometer and (inside-outside) thermometer.

Plant Digger (3 point hookup with 10", 16", & 30" blades.)

Portable Air Tank

Hay Baler and rake



Te-12459-8 Rooting bed 40' long & 40" wide - equipped with
20' of mist on timer and heating cable.

WASTE MATERIAL AND CLEANING

In prior years field clean-up between harvests and during the dormant period were accomplished by using the Gehl forage chopper and blowing the mulch into a cotton wagon. The mulch was then given to local Soil and Water Conservative District Cooperators for use on critical area stabilization and as a mulch to establish field waterways. There is generally enough seed retained in the mulch to help insure a cover. The wagons were hard to unload and there was lots of bulk and no weight.

In the spring of 1971 a hay baler was purchased for use at the Center so that mulch could be transported for use in a wider geographic area.

There were 3250 bales of mulch produced on the Center in 1971. Distribution was as follows:

Oklahoma - (Washita Watershed Structures)	1070 bales
Texas - Paducah (Sewage Pond edges)	200 bales
Vernon (Boys Club of America Dam)	150 bales
Lubbock (Duck Creek Watershed)	720 bales
Iowa Park (Critical Area Stabilization)	360 bales
Crowell (Prairie Restoration)Copper Breaks	68 bales
Big Lake (Salted out area)	180 bales
	<hr/> 2748 bales

Approximately 500 bales were left in the stack. These will be allocated in 1971.



Te-12784-8 Baling Caucasian bluestem, 1971 planting.

APPENDIX - A
INITIAL OBSERVATIONAL AREA - 1971
GRAMINEAE - GRASSES

Code:

P - Perennial

B - Bunch

S - Sod

NG- No Germination

1 - Excellent

3 - Good

5 - Fair

7 - Poor

9 - None

Example: 34-22x18

34 - head height

22 - foliage ht.

18 - foliage width

@ foliage height

PI or FMT No.	Other No.	Origin	Date :Planted:	Growth :Type	Vigor	Leaf :Prod:	Seed :Prod:	Res. to Disease	Measurement	Maturity :Date	Stand :Ratings
<u>Agropyron elongatum</u> (Host) Beauv. tall wheatgrass											
2126	PI-283163	Portugal	2-18-70	PB	3	3	5	5	23-8x11	6-15	3
2127	PI-283164	China	2-18-70	PB	7	3	7	1	24-12x12	7-1	3
2128	PI-297871	Argentina	2-18-70	PB	5	3	3	1	38-13x13	7-1	5
<u>Agropyron juncium</u> (L.) Beauv.											
1195	PI-281863	Germany	3-18-70	PS	1	5	3	3	34-23x30	7-1	3
2129	PI-292580	Israel	2-18-70	PS	7	7	9	9	8x21	---	9
2130	PI-292581	Israel	2-18-70	PS	3	7	7	7	10x10	7-1	5
2131	PI-297873	Portugal	2-18-70	PS	7	7	9	9	10x18	---	5
<u>Agropyron scabrifolium</u> wheatgrass											
2132	PI-297875	Australia	3-23-70	PB	5	5	5	3	32-13x18	---	5
<u>Agropyron tsukushiense</u> (Honda) Ohwi.											
1197	PI-283170	Japan	3-18-70	PB	1	5	3	1	28-10x38	6-15	1
<u>Andropogon annulatus</u> Forsk Diaz bluestem											
2645		Laredo, Texas	4-30-71	PB	5	5	3	1	48-40x40	7-1	5
<u>Andropogon barbinoidis</u> Lag. cane bluestem											
666		Rock Springs, Tx.	4-24-68	PB	5	5	5	1	46-30x40	7-15	5
<u>Andropogon caucasicus</u> Trin. Caucasian bluestem											
588	PI-78758	Commercial	4-30-71	PB	3	5	3	1	48-40x40	10-28	1
<u>Andropogon gerardi</u> Vitman big bluestem											
667		Clarksville, Tex	5-2-67	PB	3	5	3	1	46-30x16	10-15	3
668		New Boston, Tex.	4-29-71	PB	7	7	7	9	---	---	7
669		Lufkin, Texas	4-29-71	PB	7	7	9	5	---	---	7
670		Gatesville, Tx.	4-29-71	PB	7	7	9	-	---	---	7
671		Oenaville, Ga.	4-29-71	PB	7	7	5	1	49-18x20	11-1-71	3
671		Oenaville, Ga.	4-29-71	PB	7	7	9	7	---	---	7
1141	AM-59	Franklin Co. Ark.	5-2-67	PB	1	3	5	1	46-20x20	10-15-71	3
1243		Whitesboro, Tex.	4-29-71	PB	7	7	7	1	31-4x12	12-1	7
1243		Whitesboro, Tex.	5-2-67	PB	5	7	7	1	47-16x22	10-15	3
1244		Decatur, Texas	4-29-71	PB	7	5	7	1	59-14x31	10-19-71	7
1244		Decatur, Texas	5-2-67	PB	7	3	7	1	41-16x24	10-15-71	1
1245		Denton, Texas	4-29-71	PB	7	5	5	1	51-14x22	10-19-71	5
1245		Denton, Texas	5-2-67	PB	5	3	5	1	43-18x24	10-15-71	1
1246		Gainesville, Tx.	4-29-71	PB	7	7	7	1	49-8x18	12-1-71	7
1246		Gainesville, Tx.	5-2-67	PB	3	3	5	1	44-10x24	10-15-71	7

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:	Example: 34-22x18			
P - Perennial				34 - head height
B - Bunch				22 - foliage height
S - Sod	1 - Excellent	5 - Fair		18 - foliage width
NG- No Germination	3 - Good	7 - Poor	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf Vigor	Seed Prod.	Res. to Prod:Disease:	Measurement::	Maturity Date	Stand :Ratings
Andropogon gerardi Vitman big bluestem										
1247		New Boston, Texas	4-29-71	GD						
1247		New Boston, Texas	5-2-71	PB	1	3	3	1	40-15x30	10-15 7
1248		Sulphur Springs, Tex.	4-29-71	PB	7	7	7	1	52-6x12	12-1 7
1248		Sulphur Springs, Tex.	5-2-67	PB	3	3	5	1	48-14x25	10-20-71 5
1249		Bryan, Texas	4-29-71	PB	7	7	9	1	- 2x4	--- 7
1249		Bryan, Texas	5-2-67	PB	3	3	3	1	34-16x22	11-1-71 5
1423		'Champ'	5-2-67	PR	3	5	7	1	43-18x22	10-15-71 1
1423		'Champ'	4-29-71	PR	7	7	7	1	47-10x25	12-1-71 7
1424		'Pawnee'	4-29-71	PB	5	3	3	1	55-13x20	10-15-71 3
1424		'Pawnee'	4-29-71	PB	3	7	3	1	52-18x23	10-19-71 3
1424		'Pawnee'	4-29-71	PB	5	3	5	1	55-16x28	10-19-71 3
1424		'Pawnee'	4-29-71	PB	3	5	3	1	55-16x24	10-19-71 3
1424		'Pawnee'	4-29-71	PB	3	7	3	1	51-16x31	10-20-71 3
1424		'Pawnee'	4-29-71	PB	3	5	5	1	55-16x31	10-20-71 3
1424		'Pawnee'	5-2-67	PB	1	3	7	1	36-10x19	10-15-71 1
1429		Gatesville, Texas	4-29-71	PB					- 2x8	--- 7
1429		Gatesville, Texas	5-2-67	PB	1	3	5	1	48-14x22	11-1-71 3
1430		Temple, Texas	4-29-71	PB	1	7	7	1	46-12x28	12-1-71 7
1430		Temple, Texas	5-2-67	PB	3	5	1	0	43-18x24	10-15-71 5
1431		Temple, Texas	4-29-71	PB	7	7	9	9	- 6x20	--- 7
1479		'Kaw'	4-29-71	PB	5	5	3	1	63-19x39	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	5	1	59-19x35	10-20-71 3
1479		'Kaw'	4-29-71	PB	5	3	5	1	55-16x32	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	3	1	57-18x27	10-20-71 3
1479		'Kaw'	4-29-71	PB	5	3	3	1	55-18x24	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	1	1	59-18x24	10-20-71 3
1479		'Kaw'	4-29-71	PB	1	5	3	1	59-20x37	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	5	5	1	63-24x37	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	5	5	1	59-17x31	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	3	1	51-16x31	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	5	1	59-16x33	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	3	1	59-19x35	10-30-71 3
1479		'Kaw'	4-29-71	PB	3	3	5	1	69-16x31	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	5	1	59-16x28	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	3	3	1	55-16x31	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	5	5	1	63-24x35	10-20-71 3
1479		'Kaw'	4-29-71	PB	3	5	5	1	63-18x30	10-20-71 1
1479		'Kaw'	4-29-71	PB	5	3	5	1	57-20x24	10-15-71 1
1814		Wilburton, Okla.	4-29-71	PB	3	3	5	1	63-16x33	10-20-71 3
1815		Jay, Okla.	4-29-71	PB	3	3	5	1	51-13x24	10-26-71 3
1816		Okmulgee, Okla.	4-29-71	PB	5	5	7	1	59-16x24	10-26-71 3
1817		Norman, Oklahoma	4-29-71	PB	5	5	5	1	51-16x31	10-20-71 3
1818		Ada, Oklahoma	4-29-71	PB	3	3	5	1	63-14x28	10-20-71 3
1819		Okmulgee, Okla.	4-29-71	PB	5	7	7	1	55-14x24	10-26-71 3
1821		Hugo, Oklahoma	4-29-71	PB	5	3	7	1	59-12x24	10-26-71 3
1822		Stigler, Oklahoma	4-29-71	PB	3	7	5	1	59-16x24	10-20-71 3
1823		Idabel, Oklahoma	4-29-71	PB	3	5	7	1	63-16x31	10-20-71 3
1824		Miami, Oklahoma	4-29-71	PB	5	7	5	1	51-8x14	10-26-71 5
1825		Stillwater, Oklahoma	4-29-71	PB	3	7	7	1	56-10x16	10-26-71 3
1826		Atoka, Oklahoma	4-29-71	PB	3	3	5	1	63-20x35	10-20-71 3
1827		Atoka, Oklahoma	4-29-71	PB	5	3	7	1	59-16x28	10-22-71 5
1828		Blackwell, Oklahoma	4-29-71	PB	5	3	7	1	51-16x26	10-25-71 3
1829		Blackwell, Oklahoma	4-29-71	PB	7	7	7	1	55-12x35	10-10-71 7
1830		Oklahoma City, Okla.	4-29-71	PB	3	5	5	1	59-18x31	10-20-71 3
1831		Wagonor, Oklahoma	4-29-71	PB	5	7	5	1	57-12x22	10-26-71 3

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:

P - Perennial

B - Bunch

S - Sod

NG- No Germination

1 - Excellent

3 - Good

5 - Fair

7 - Poor

9 - None

Example: 34-22x18

34 - head height

22 - foliage height

18 - foliage width

ø foliage height

FMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Prod:Disease:	Measurement::	Maturity :Date	Stand :Ratings
<u>Andropogon gerardi</u> Vitman big bluestem										
1832		Pauls Valley, Okla.	4-29-71	PB	3	5	3	1	67-20x36	10-20-71 3
1833		Pauls Valley, Okla.	4-29-71	PB	5	5	5	1	63-16x31	10-20-71 3
1834		Stillwater, Okla.	4-29-71	PB	5	7	5	1	53-10x24	10-26-71 3
1835		Pryor, Okla.	4-29-71	PB	5	7	3	1	63-16x24	10-26-71 3
1837		Holdenville, Okla.	4-29-71	PB	5	5	5	1	51-17x27	10-25-71 3
1838		Holdenville, Okla.	4-29-71	PB	5	5	5	1	57-14x22	10-26-71 3
1839		McAlister, Okla.	4-29-71	PB	5	3	7	1	51-16x31	11-1-71 3
1840		McAlister, Okla.	4-29-71	PB	5	5	3	1	51-16x35	10-20-71 3
1841		Ardmore, Oklahoma	4-29-71	PB	5	5	5	1	51-14x30	12-1-71 5
1842		Nowata, Oklahoma	4-29-71	PB	3	7	3	1	55-16x30	10-10-71 3
1843		Nowata, Oklahoma	4-29-71	PB	5	7	3	1	59-16x30	10-20-71 3
1844		Wellington, Okla.	4-29-71	PB	5	3	5	1	59-18x33	10-27-71 3
1845		Independence, Ka.	4-29-71	PB	5	1	1	1	65-20x35	10-20-71 3
1846		Sedan, Ka.	4-29-71	PB	7	7	7	1	59-14x27	10-20-71 5
1847		Eureka, Ka.	4-29-71	PB	3	5	5	1	59-16x39	10-20-71 3
1848		Eldorado, Kan.	4-29-71	PB	5	7	3	1	63-19x39	10-20-71 3
1849		Erie, Kan.	4-29-71	PB	3	5	5	1	59-16x35	10-27-71 5
1850		Columbus, Kan.	4-29-71	PB	7	7	3	1	51-12x27	10-27-71 5
1852		Bristow, Okla.	4-29-71	PB	5	3	3	1	52-16x24	10-26-71 3
1921		Berryville, Ark.	4-29-71	PB	5	3	3	1	59-16x24	10-26-71 3
1926		Mona, Ark.	4-29-71	PB	7	7	7	1	43-3x12	11-1-71 7
1930		Harrisonville, Ark.	4-29-71	PB	3	5	7	1	55-16x32	10-20-71 3
1931		Libonon, Mo.	4-29-71	PB	5	5	5	1	63-16x35	10-20-71 3
1932		Minden Mines, Mo.	4-29-71	PB	3	5	7	1	55-28x32	10-20-71 3
1934		Lamar, Mo.	4-29-71	PB	3	7	7	1	55-8x31	10-20-71 3
1935		Monett, Mo.	4-29-71	PB	3	3	5	1	59-16x18	10-10-71 3
1936		Sparta, Mo.	4-29-71	PB	5	3	7	1	55-16x32	10-27-71 3
1938		Clarksville, Tex.	4-29-71	PB	7	5	7	1	59-16x32	10-19-71 7
1939		New Boston, Tex.	4-29-71	PB	5	7	5	1	67-12x28	10-19-71 3
1940		Pilot Point, Tex.	4-29-71	PB	5	3	7	1	55-14x28	10-19-71 3
1941		Pilot Point, Tex.	4-29-71	PB	5	3	3	1	51-17x32	10-19-71 3
1942		Denton, Texas	4-29-71	PB	7	7	7	1	35-8x20	12-1-71 7
1943		Victoria, Texas	4-29-71	PB	3	1	1	1	78-32x39	12-10-71 3
1944		Muenster, Texas	4-29-71	PB	5	5	7	1	51-16x27	12-1-71 3
1945		Nocona, Tex.	4-29-71	PB	3	3	5	1	59-12x24	10-20-71 5
1946		Nocona, Tex.	4-29-71	PB	3	3	5	1	55-16x20	10-20-71 5
1947		Weatherford, Tex.	4-29-71	PB	7	3	3	1	59-13x32	12-1-71 3
1948		Bonham, Texas	4-29-71	PB	7	7	7	1	26-4x10	12-1-71 7
1949		Beaumont, Texas	4-29-71	PB	7	7	7	7	51-8x18	11-15-71 7
1950		Canton, Texas	4-29-71	PB	7	7	7	1	47-10x18	10-19-71 5
1951		Meridan, Texas	4-29-71	PB	7	7	9	1	57-8x18	--- 7
1952		Temple, Texas	4-29-71	PB	7	7	5	1	48-13x27	12-1-71 5
1953		Kaufman, Texas	4-29-71	PB	5	3	3	1	59-16x31	10-19-71 3
1954		Gainesville, Texas	4-29-71	PB	7	7	9	1	43-8x16	--- 7
1955		Gainesville, Texas	4-29-71	PB	7	7	7	1	43-8x16	10-19-71 7
1956		Fort Worth, Texas	4-29-71	PB	7	7	7	1	55-10x24	12-1-71 5
2301		Wewoka, Okla.	4-29-71	PB	5	5	7	1	55-16x24	10-20-71 3
2302		Chickasha, Okla.	4-29-71	PB	7	5	7	1	39-12x19	11-1-71 5
2303		Goliad, Texas	4-29-71	PB	7	3	3	1	55-19x27	12-1-71 3
2304		Refugio, Texas	4-29-71	PB	7	3	5	1	57-19x33	12-1-71 5
2305		Poteau, Okla.	4-29-71	PB	5	7	7	1	59-16x29	11-1-71 7
2397		Neuces Co., Texas	4-29-71	PB	5	1	5	1	82-24x47	12-10-71 3
2453	AM-300	Georgia PMC	4-30-70	PB	Winter killed					
2454	AM-295	Georgia PMC	4-30-70	PB	Winter killed					
2455	AM-301	Georgia PMC	4-30-70	PB	Winter killed					

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:					Example:	34-22x18
P - Perennial					34 - head height	
B - Bunch					22 - foliage height	
S - Sod	1 - Excellent	5 - Fair			18 - foliage width	
NG-No Germination	3 - Good	7 - Poor	9 - None			@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res.to :Prod:	Disease :Measurement:	Maturity :Date	Stand :Ratings
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Andropogon gerardi Vitman
big bluestem

2648		Refugio, Tex.	4-29-71	PB	7	7	7	1	61-12x18	12-10-71	7
2649		New Boston, Tex.	4-29-71	PB	7	7	7	1	67-12x26	11-15-71	5
2650		Port Lavaca, Tex.	4-29-71	PB	7	5	7	1	71-19x32	12-1-71	5
2651		Cleburne, Texas	4-29-71	PB	7	7	5	1	47-10x26	10-19-71	5
2652		Caldwell, Texas	4-29-71	PB	7	3	5	1	59-18x28	12-1-71	5
2653		Corsicana, Texas	4-29-71	PB	7	7	7	1	19-8x16	10-9-71	7
2654		Kenedy Co., Texas	4-29-71	PB	7	3	5	1	76-24x39	12-10-71	5
2657		Russellville, Ark.	4-29-71	PB	7	7	5	1	49-10x16	10-26-71	7
2658		Marshall, Ark.	4-29-71	PB	7	7	7	1	30-10x16	10-26-71	7
2659		Danville, Ark.	4-29-71	PB	7	7	7	1	43-4x6	10-20-71	7
2660		Fort Smith, Ark.	4-29-71	PB	7	7	7	1	34-8x13	10-26-71	7
2661		Ozark, Ark.	4-29-71	PB	7	7	7	1	51-6x16	10-26-71	7
2662		Ozark, Ark.	4-29-71	PB	7	7	5	1	51-8x18	11-1-71	7
2664		Ozark, Ark.	4-29-71	PB	7	7	7	1	46-10x16	11-1-71	7
2665		Mona, Ark.	4-29-71	PB	7	7	7	1	43-8x19	12-1-71	7
2666	#1	Clinton, Ark.	4-29-71	PB	7	3	7	1	51-18x19	10-26-71	3
2667	#2	Clinton, Ark.	4-29-71	PB	7	3	7	1	46-16x24	10-26-71	3
2668	#3	Clinton, Ark.	4-29-71	PB	7	7	5	1	47-14x19	10-26-71	3
2669	#1	Conway, Ark.	4-29-71	PB	3	7	5	1	59-12x19	10-20-71	5
2670	#2	Conway, Ark.	4-29-71	PB	7	7	7	1	59-13x19	10-20-71	7
2671	#3	Conway, Ark.	4-29-71	PB	3	7	7	1	63-12x29	10-20-71	3
2672		Mountain Home, Ark.	4-29-71	PB	5	7	7	1	49-10x19	10-26-71	7
2673		Clarksville, Ark.	4-29-71	PB	7	7	7	1	63-6x19	11-1-71	5
2674		Goliad, Tex.	4-29-71	PB	7	5	5	1	59-18x29	12-1-71	3
2675		Victoria, Tex.	4-29-71	PB	5	3	7	1	55-16x29	12-1-71	3

Andropogon hallii Hack.
sand bluestem

164		Wheeler, Texas	3-30-68	FS	5	5	3	1	75-45x50	9-20-71	3
164		Wheeler, Texas	5-3-68	FS	3	5	5	1	62-10x40	9-20-71	5
206		Paducah, Texas	3-20-68	FS	5	3	1	1	72-39x52	9-20-71	7
206		Paducah, Texas	5-3-68	FS	5	7	5	1	80-24x33	10-15x71	5
590		'Woodward'	5-3-68	FS	3	7	5	1	60-31x34	10-15-71	3
590		'Woodward'	5-3-68	FS	5	3	5	1	60-27x34	10-15-71	3
797		'Elida'	3-20-68	FS	5	3	3	1	75-28x35	10-15-71	5
797		'Elida'	5-3-68	FS	3	7	7	1	78-29x36	10-15-71	5
1142	AM-104	Georgia PMC	5-3-68	FS	5	7	3	1	80-30x35	10-15-71	5
1253		Crosbyton, Texas	5-3-68	FS	5	7	3	1	73-34x36	10-15-71	3
1254		Crosbyton, Texas	5-3-68	FS	5	3	3	1	58-30x40	10-15-71	3
1255		Waurika, Oklahoma	5-3-68	FS	5	7	7	1	48-22x30	10-15-71	3
1482		Elk City, Oklahoma	5-3-68	FS	3	3	3	1	49-34x40	10-15-71	3
1629		Lawton, Oklahoma	5-3-68	FS	5	7	7	1	54-26x32	10-15-71	7
1630		Waurika, Oklahoma	5-3-68	FS	3	5	7	1	56-27x36	10-15-71	3
1631		Hinton, Oklahoma	5-3-68	FS	3	3	5	1	45-25x40	10-15-71	3
1632		Hinton, Oklahoma	5-3-68	FS	7	7	7	1	36-15x20	10-15-71	7
1633		Waurika, Oklahoma	5-3-68	FS	3	7	3	1	90-36x40	10-15-71	7

Andropogon intermedius R.Br.
Australian bluestem

2647		Crystal City, Texas	4-30-71	PB	1	3	9	1	62-52x40	Froze	5
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Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:

R - Rhizomatous

P - Perennial

B - Bunch

S - Sod

GD- Germinated-Died

1 - Excellent

3 - Good

5 - Fair

7 - Poor

9 - None

Example: 34-22x18

34 - head height

22 - foliage height

18 - foliage width

@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type :	Leaf :Vigor:	Seed :Prod:	Res. :Prod:	to :Disease:	Measurement:	Maturity :Date:	Stand :Ratings:
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Andropogon scoparius Michx.
little bluestem

1638		Hinton, Oklahoma	5-3-68	PB	5	3	3	1	40-15x18	10-15x71	3
1639		McAlister, Oklahoma	5-3-68	GD							
1640		Holdenville, Texas	5-3-68	PB	5	7	5	5	42-13x20	10-15-71	5
1641		Rush Spring, Oklahoma	5-3-68	PB	1	3	3	1	46-16x24	10-15-71	3
1642		Rush Spring, Oklahoma	5-3-68	PB	5	3	5	1	46-16x23	10-15-71	1
1643		Holdenville, Oklahoma	5-3-68	PB	5	3	5	1	46-13x20	10-15-71	5
1644		Duncan, Oklahoma	5-3-68	PB	3	7	7	1	44-13x19	10-15-71	7
1645		Duncan, Oklahoma	5-3-68	PB	3	7	5	1	42-15x23	10-15-71	3
1646		Ardmore, Oklahoma	5-3-68	PB	5	7	3	1	50-14x24	10-15-71	7
1649		Atoka, Oklahoma	5-3-68	PB	3	3	5	1	32-14x22	10-15-71	7
1650		Atoka, Oklahoma	5-3-68	PB	5	7	5	1	39-13x23	10-15-71	5
1651		Waurika, Oklahoma	5-3-68	PB	5	3	3	1	38-14x24	10-15-71	3
1652		Waurika, Oklahoma	5-3-68	PB	5	7	3	1	48-17x29	10-15-71	3
1653		McAlister, Oklahoma	5-3-68	PB	7	7	5	1	40-14x18	10-15-71	7
1654		Hinton, Oklahoma	5-3-68	PB	5	3	5	1	32-8x14	10-15-71	3
1655		Durant, Oklahoma	5-3-68	PB	7	7	3	1	34-14x21	10-15-71	7
1656		Sentinel, Oklahoma	5-3-68	PB	3	3	5	1	40-14x29	10-15-71	3
1657		Ada, Oklahoma	5-3-68	PB	5	3	7	1	28-14x20	10-15-71	7
2710		Bandera, Texas	4-30-71	PB	3	7	3	1	34-10x24	10-28-71	5
2711		Llano, Texas	4-30-71	PB	5	3	5	1	30-8x20	10-28-71	7
2712		Weatherford, Texas	4-30-71	PB	3	7	5	1	34-10x19	10-28-71	7
2713		Weatherford, Texas	4-30-71	PB	3	7	5	1	34-9x16	10-28-71	5
2714		Meridan, Texas	4-30-71	PB	3	7	5	1	36-10x22	10-28-71	5
2715		Meridan, Texas	4-30-71	PB	7	7	7	1	26-6x10	10-28-71	7
2716		Mineral Wells, Texas	4-30-71	PB	3	7	3	1	36-12x22	10-28-71	5
2717		Mineral Wells, Texas	4-30-71	PB	3	3	3	1	40-12x23	10-28-71	3
2718		Stephenville, Texas	4-30-71	PB	3	3	5	1	36-10x23	10-28-71	7
2719		Stephenville, Texas	4-30-71	PB	3	3	5	1	36-10x23	10-28-71	7
2720		Mineral Wells, Texas	4-30-71	PB	3	3	3	1	38-10x23	10-28-71	5
2721		Johnson City, Texas	4-30-71	PB	5	3	5	1	36-8x18	10-28-71	7
2722		Johnson City, Texas	4-30-71	PB	3	3	3	1	36-10x22	10-28-71	3
2723		Johnson City, Texas	4-30-71	PB	5	7	5	1	30-9x16	10-28-71	7
2724		Johnson City, Texas	4-30-71	PB	3	3	5	5	34-9x20	10-28-71	5
2726		Bracketville, Texas	4-30-71	PB	5	7	5	1	36-9x20	10-28-71	7
2727		Rocksprings, Texas	4-30-71	PB	5	3	3	1	34-10x20	10-28-71	5
2728		Rocksprings, Texas	4-30-71	PB	3	3	3	1	40-11x20	10-28-71	3
2729		Uvalde, Texas	4-30-71	PB	5	7	5	1	40-8x18	11-10-71	7
2730		Uvalde, Texas	4-30-71	PB	5	7	5	1	40-10x22	11-10-71	5
2731		Llano, Texas	4-30-71	PB	1	3	1	1	38-10x28	10-28-71	1
2732		Uvalde, Texas	4-30-71	PB	5	7	5	3	36-10x18	11-1-71	5
2733		Del Rio, Texas	4-30-71	PB	1	3	7	1	40-12x20	11-10-71	3
2734		Hondo, Texas	4-30-71	PB	5	7	3	1	33-9x20	11-10-71	7
2735		Carrizo Springs, Tex.	4-30-71	PB	5	3	5	1	40-10x24	11-10-71	7
2736		Pearsall, Texas	4-30-71	PB	5	7	5	1	34-12x20	11-1-71	5
2737		Bracketville, Texas	4-30-71	PB	1	7	5	1	36-10x22	11-15-71	5
2738		Carrizo Springs, Tex.	4-30-71	PB	5	7	1	1	46-20x24	11-15-71	5
2739		Pleasanton, Texas	4-30-71	PB	5	7	3	1	40-11x22	11-1-71	5

Andropogon scoparius var. littoralis Nash.
seacoast bluestem

982		Padre Island, Texas	5-2-67	PR	3	3	3	1	56-29x20	11-15-71	3
982		Padre Island, Texas	5-23-69	PR	3	3	3	1	56-22x40	11-15-71	5
1251		George West, Texas	5-2-67	PR	1	3	3	1	52-30x24	11-15-71	7

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:

R - Rhizomatous	WK - winter killed								Example: 34-22x18
P - Perennial	GD - Germinated-Died	1 - Excellent							34 - head height
B - Bunch		3 - Good							22 - foliage height
S - Sod		5 - Fair							18 - foliage width
NG- No Germination		7 - Poor	9 - None						@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth Type	Leaf :Vigor:	Leaf Prod:	Leaf Prod:	Res. to Disease:	Measurement:	Maturity Date	Stand :Ratings
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Andropogon scoparius var. littoralis Nash.
seacoast bluestem

1251		George West, Texas	5-23-69	PR	NG						
1647		Crystal City, Texas	5-3-68	PR	5	7	3	1	54-28x24	11-15-71	3
1648		Carrizo Springs, Tex.	5-3-68	PR	3	5	3	1	60-29-27	11-15-71	5
1904		Crystal City, Texas	5-23-69	PR	3	3	3	1	52-40x40	10-27-71	7
1906		North Carolina	5-23-69	PR	5	7	3	1	38-12x12	11-15-71	7
1907		Hondo, Texas	5-23-69	PR	3	3	3	1	52-40x40	10-27-71	5
1908		Carrizo Springs, Texas	5-23-69	PR	3	7	3	1	56-50x30	10-27-71	5

Andropogon L. sp.
bluestem

2725		Victoria, Texas	4-30-71	PB	5	5	1	1	62-36x40	10-10-71	3
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Andropogon stolonifer (Nash) Hitchc.

2441	F-836	Florida FMC	WK								
	AM-182										
2442	F-2857	Florida FMC	WK								

Arundinaria gigantea (Watt.) Muhl.
giant cane

2243		Hugo, Oklahoma	10-20-69	PR	7	7	9	1	4" - 12" ht. ---		7
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Arundinaria Michx. sp.
cane

2377		Lawrence, Texas	2-2-70	PR	7	7	9	1	10" ht. ---		5
2387		Hugo, Oklahoma	3-9-70	PR	7	7	9	1	35" x 40" ---		7

Arundinaria tecta (Walt.) Muhl.
switchcane

2438		Quicksand, Kentucky	4-11-70	PR	7	7	9	1	25" x 35" ---		7
2439		Quicksand, Kentucky	4-11-70	PR	7	7	9	1	15" x 25" ---		7
2796	TN-71-1	Tennessee	4-10-71	PR	7	7	9	1	6" x 4" ---		5

Arundo donax L.
giant reedgrass

2347	AM-797	Georgia FMC	2-2-70	PR	1	1	9	1	175" x 76" ---		1
2357		Rio Grande City, Tex.	2-19-70	PR	1	1	9	1	193" x 94" ---		1
2358		Laredo, Texas	2-19-70	PR	1	1	9	1	185" x 94" ---		1
2390		Washington O.S.N.	3-17-70	PR	1	1	9	1	185" x 94" ---		3
2794		Florida FMC	4-8-71	PR	3	3	9	1	78" x 67" ---		3

Bothriochloa ischaemum var. ischaemum (L.) Keng.
bluestem

2646		'Plains'	4-30-71	PB	1	3	3	1	40-30x30	9-10-71	1
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Bouteloua curtipendula (Michx.) Torr.
sideoats grama

106		'Uvalde'	5-23-69	PS	1	7	3	1	34-13x24	9-1-71	3
201		Throckmorton, Texas	5-23-69	PS	1	3	5	1	40-13x28	8-19-71	?

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:		1 - Excellent	Example: 34-22x18
P - Perennial		3 - Good	34 - head height
R - Rhizomatous	NG - No Germination	5 - Fair	22 - foliage height
B - Bunch	GD - Germinated-Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter Killed	9 - None	24 foliage height

PMF No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf Seed Res. to :Vigor:Prod:Prod:Disease:Measurement:	Maturity :Date	Stand :Ratings
<i>Bouteloua curtipendula</i> (Michx.) Torr. sideoats grama							
201		Throckmorton, Texas	5-23-69	FS	1 3 5 1	38-14x28	8-19-71 3
201		Throckmorton, Texas	5-23-69	FS	3 3 5 1	42-15x28	8-19-71 3
201		Throckmorton, Texas	5-23-69	FS	3 3 5 1	30-13x26	8-19-71 3
328		Van Horn, Texas	5-23-69	PB	5 5 3 1	36-15x34	7-7-71 3
							10-6-71
470		Haskell, Texas	5-23-69	FS	1 3 1 1	38-13x30	8-30-71 1
470		Haskell, Texas	5-23-69	FS	3 3 5 1	34-12x28	8-30-71 3
470		Haskell, Texas	5-23-69	FS	1 3 3 1	37-15x28	8-30-71 3
594		'Premier'	5-23-69	PB	1 3 1 1	44-16x25	10-20-71 3
696		'El Reno'	5-23-69	FS	5 3 7 1	32-14x28	11-1-71 3
696		'El Reno'	5-23-69	FS	3 3 7 1	36-10x25	11-1-71 5
970		Tazewell, Va.	5-23-69	FS	1 7 5 1	34-12x26	11-1-71 5
971		Kessel, W. Va.	5-23-69	FS	1 7 5 1	36-10x23	11-1-71 5
1007		George West, Texas	5-23-69	NG			
1223		Big Springs, Texas	5-23-69	PB	3 7 7 1	35-12x30	11-1-71 3
1290		Waco, Texas	5-23-69	FS	3 7 1 1	48-18x28	11-1-71 5
1291		Hondo, Texas	5-23-69	PB	3 7 3 1	34-15x25	11-1-71 3
1292		Hondo, Texas	5-23-69	PB	1 7 3 1	37-16x23	11-1-71 5
1293		Hondo, Texas	5-23-69	PB	3 7 5 1	36-16x28	11-1-71 3
1294		Hondo, Texas	5-23-69	FS	5 7 3 1	36-14x28	11-1-71 3
1295		Hondo, Texas	5-23-69	FS	1 7 5 1	32-13x27	11-1-71 3
1296		Hondo, Texas	5-23-69	FS	1 7 7 1	36-15x29	11-1-71 3
1425	W-4	Woodward, Okla.	5-23-69	FS	3 3 3 1	36-14x28	11-1-71 3
1426	PC-38-221	NPMC	5-23-69	FS	3 3 7 1	34-15x29	11-1-71 5
1784		Coryell Co., Texas	5-23-69	PB	3 7 3 1	36-17x22	11-1-71 3
1796		Tilden, Texas	5-23-69	FS	1 7 3 1	38-16x30	11-1-71 3
1797		Abilene, Texas	5-23-69	PB	1 7 5 1	36-14x23	10-10-71 5
1798		Knox City, Texas	5-23-69	FS	3 3 7 1	40-13x32	10-15-71 5
1799		Dublin, Texas	5-23-69	GD			
1800		Harrisburg, Va.	5-23-69	FS	5 7 7 1	34-10x26	8-15-71 3
1853		Tilden, Texas	5-23-69	FS	1 3 1 1	40-16x28	10-20-71 3
1854		Snyder, Texas	5-23-69	FS	1 3 7 1	40-16x30	11-1-71 7
1855		Weatherford, Texas	5-23-69	FS	1 7 3 1	38-15x32	11-1-71 7
1856		Eldorado, Texas	5-23-69	FS	5 7 3 1	42-16x27	11-1-71 3
1857		Memphis, Texas	5-23-69	FS	1 7 5 1	38-14x32	11-1-71 3
1858		Vernon, Texas	5-23-69	FS	1 7 7 1	33-13x30	11-1-71 3
1859		Coleman, Texas	5-23-69	FS	1 7 5 1	30-15x30	11-1-71 7
1860		Coleman, Texas	5-23-69	FS	3 3 7 1	36-14x30	11-10-71 7
1861		San Saba, Texas	5-23-69	PB	1 3 3 1	44-16x30	11-1-71 3
1862		Coleman, Texas	5-23-69	FS	1 7 3 1	42-13x28	11-1-71 7
1863		Plainview, Texas	5-23-69	FS	1 7 5 1	38-15x31	11-1-71 3
1864		Coleman, Texas	5-23-69	FS	5 7 7 1	32-14x28	11-1-71 3
1865		Comanche, Texas	5-23-69	PB	1 7 1 1	46-17x34	11-1-71 3
1866		Weatherford, Texas	5-23-69	NG			
1867		San Saba, Texas	5-23-69	PB	5 7 1 1	48-16x28	11-1-71 3
1868		Throckmorton, Texas	5-23-69	NG			
1869		Weatherford, Texas	5-23-69	NG			
1870		Post, Texas	5-23-69	PR	3 7 5 1	40-16x26	10-20-71 5
1871		Robert Lee, Texas	5-22-69	PR	1 3 3 1	44-16x30	10-20-71 3
1872		Robert Lee, Texas	5-22-69	PR	1 3 5 1	36-16x28	10-20-71 3
1873		Big Lake, Texas	5-22-69	PR	5 3 7 1	36-16x37	10-20-71 3
1874		Abilene, Texas	5-22-69	PB	3 7 1 1	44-18x33	10-20-71 3
1875		Midland, Texas	5-22-69	PR	3 3 3 1	34-14x36	10-20-71 5
1876		Post, Texas	5-22-69	PR	5 7 5 1	44-17x34	10-20-71 3

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:		1 - Excellent	Example:	34-22x18
P - Perennial	A - Annual	3 - Good		34 - head height
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B - Bunch	GD - Germinated-Died	7 - Poor		18 - foliage width
S - Sod	WK - Winter Killed	9 - None		@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Prod:	Disease:Measurement:	Maturity :Date	Stand :Ratings
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Bouteloua curtipendula (Michx.) Torr.
sideoats grama

1877		Post, Texas	5-22-69	PR	5	3	7	1	38-15x34	10-20-71	3
2481		Austin, Texas	5-7-71	PR	7	7	7	1	6-2x2	11-1-71	7
2482		Monahans, Texas	5-7-71	PR	3	3	5	1	25-9x12	11-1-71	3
2483		Alice, Texas	5-7-71	PB	5	5	9	1	24-10x14	---	7
2484		Uvalde, Texas	5-7-71	PB	5	5	5	1	26-10x14	11-1-71	3

Bouteloua gracilis (H.B.K.) Lag. ex Steud
bluegrama

99		'Marfa'	5-3-68	PB	5	7	7	1	29-12x30	---	5
697		Aspermont, Texas	5-2-67	PB	3	3	3	1	18-10x12	---	1
697		Aspermont, Texas	5-2-67	PB	5	5	3	1	27-12x22	---	1
697		Aspermont, Texas	5-3-68	PB	1	3	5	1	25-11x24	---	1
697		Aspermont, Texas	5-3-58	PB	5	3	3	1	26-11x24	---	1
1214		Knox City, Texas	5-3-68	PB	5	7	5	1	25-12x24	---	1
1214		Knox City, Texas	5-2-67	PB	5	7	5	1	28-12x21	---	1
1215		Archer City, Texas	5-2-67	PB	5	5	7	1	26-12x20	---	1
1215		Archer City, Texas	5-2-67	PB	7	7	5	1	25-12x23	---	1
1216		Duncan, Okla.	5-2-67	PB	5	7	7	1	24-11x19	---	1
1217		Lawton, Okla.	5-2-67	PB	5	5	3	1	27-11x20	---	1
1218		Walters, Okla.	5-2-67	PB	5	7	3	1	26-11x18	---	1
1219		Waurika, Okla.	5-2-67	PB	5	5	5	1	25-11x20	---	1
1220		Waurika, Okla.	5-2-67	PB	3	3	5	1	25-12x22	---	1
1221		Composite *	5-2-67	PB	3	5	5	1	22-12x18	---	1
1221		Composite	5-3-68	PB	5	7	3	1	26-12x24	---	1
1659		Henrietta, Texas	5-3-68	PB	5	5	5	1	24-11x24	---	1
1660		Mineral Wells, Texas	5-3-68	PB	5	7	7	1	24-11x24	---	1
1661		Haskell, Texas	5-3-68	PB	5	7	5	1	28-12x23	---	5
1662		Matador, Texas	5-3-68	PB	5	7	5	1	24-11x24	---	5
1663		Sweetwater, Texas	5-3-68	PB	5	3	5	1	24-12x24	---	3
1664		Stamford, Texas	5-3-68	PB	7	7	5	1	24-12x24	---	1
1665		Seymour, Texas	5-3-68	PB	7	7	5	1	23-12x24	---	1
1666		Vernon, Texas	5-3-68	PB	5	3	5	1	24-12x24	---	1
1807		'Commercial'	5-3-68	PB	7	7	3	1	27-11x20	---	1
1810		'Lovington'	5-3-68	PB	7	7	5	1	23-12x30	---	1

Brachiaria (Trin.) Griseb. sp.
signalgrass

1769		San Antonio, Texas	5-23-70	PB	7	7	1	1	26-12x40	7-27	3
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Bromus willdenowii Kunth.

2231	PI-164347	NPMC	2-18-70	A	7	7	3	5	24-8x8	6-8	1
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Calamovilfa gigantea (Nutt.) Scribn & Merr.
big sandreed grass

704		Canadian, Texas	5-3-68	PR	1	3	5	1	85-36x40	10-15	3
1667		Freedom, Okla.	5-3-68	PR	3	7	7	1	60-30x40	9-1	3
1668		Freedom, Okla.	5-3-68	PR	3	7	7	1	64-32x40	10-15	3
1669		Beaver, Okla.	5-3-68	PR	5	7	7	1	72-32x40	10-15	3
1670		Cherokee, Okla.	5-3-68	PR	5	7	7	1	72-33x40	10-15	3
1671		Texas Co., Okla.	5-3-68	PR	3	3	5	1	80-34x40	11-1	3

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:		1 - Excellent	Example: 34-22x18
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B - Bunch	GD - Germinated-Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter killed	9 - None	@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted:	Growth Type	Leaf Vigor	Seed Prod	Res. to Disease	Measurement	Maturity Date	Stand Ratings
<u>Cenchrus myosuroides</u> H.B.K. big sandbur										
23		Pleasanton, Texas	3-19-68	PB	3	3	5	1	58-39x39	6-15 3
<u>Chloris latisquamea</u> Nash. Nash windmillgrass										
1909		Brackettville, Texas	5-23-69	PS	5	3	1	1	38-18x40	10-20-71 3
<u>Chrysopogon fulvus</u> golden raphisgrass										
973	PI-215586	India	5-2-67	PS	3	3	7	1	56-24x28	--- 1
1301	PI-213885	India	5-2-67	PS	5	7	7	1	60-24x32	--- 1
<u>Chrysopogon gryllus</u>										
1348	PI-254887	Iraq	5-2-67	PB	1	3	3	1	60-24x30	6-24 1
<u>Coix lachryma</u> Linn. Jobs tears										
2770	PI-326342	Experiment, Georgia	4-30-70	A	1	5	3	1	32-24x32	11-1 5
<u>Cymbopogon distans</u> (Nees.) watts.										
1350	PI-271552	India	5-2-67	PB	1	3	7	1	35-18x30	11-20 3
<u>Cynodon dactylon</u> (L.) Pers. bermuda grass										
1399	BN-4158	'Tufcote'	4-7-67	PR	1	1	9	1	6" ht.	1
1520	AM-1	Texas A & M	5-25-67	PR	3	3	9	1	1½" ht.	1
1521	AM-2	Texas A & M	5-25-67	PR	5	5	9	1	1" ht.	3
1522	AM-3	Texas A & M	5-25-67	PR	3	3	9	1	7" ht.	1
1523	AM-4	Texas A & M	5-25-67	PR	3	3	9	1	6" ht.	3
2008		Lulling Foundation	5-69	PS	1	1	9	1	12" ht.	1
2199		'Coast Cross I'	7-21-69	PS	1	1	9	1	22" ht.	1
2805		'Santa Ana'	5-21-71	PR	1	1	9	1	3" ht.	1
<u>Cynodon plectostachys</u>										
1524	PI-224693	Georgia PMC	5-29-67	PS	5	5	9	1	7" ht.	5
2806	F-4750	Florida PMC	5-21-71	PS	5	7	9	1	6" ht.	5
<u>Desmostachys bipinnata</u>										
1351	PI-268417	Afghanistan	3-18-70	PR	1	3	5	1	42-24x45	10-1 3
1351	PI-268417	Afghanistan	5-2-67	PR	5	7	7	1	- 24x40	10-1 3
<u>Dichanthium annulatum</u> Forsh. Stapf. yellow bluestem										
21		'Pretoria 90'	3-20-68	PB	-	3	3	1	44-32x38	8-3 3
<u>Dichanthium sp.</u> Willemet										
587		Near East	4-30-71	PB	1	3	1	1	60-40x40	8-1 3
587		Near East	4-30-71	PB	1	3	3	1	60-40x40	8-1 1
587		Near East	4-30-71	PB	3	5	3	1	60-40x40	8-1 3
694		Near East	4-30-71	PB	3	3	3	1	60-40x40	8-1 1

Initial Observation Area - Grasses - 1971 - (Cont'd)

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B - Bunch	GD - Germinated-Died		7 - Poor		18 - foliage width
S - Sod	WK - Winter killed		9 - None		@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted:	Growth Type	Leaf Seed Res. to :Vigor:Prod:Prod:Disease:Measurement:	Maturity Stand :Date :Ratings
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Digitaria eriantha
wooly fingergrass

1803	MS-522	Miss. PMC	5-6-68	PS	3	3	9	1	48" ht.	--	1
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Distichlis stricta (Torr.) Rydb.
inland saltgrass

893		Hereford, Texas	5-15-68	PR	3	3	9	1	7" ht.	---	1
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Elymus arenarius L.
rye grass

2140	PI-297344	Norway	2-18-70	PR	1	3	9	3	20x37	6-18	1
2141	PI-297345	Norway	2-18-70	PR	5	5	7	3	18x30	6-18	5

Elymus canadensis L.
Canada wildrye

2122		Childress, Texas	2-18-70	PR	1	3	7	3	22-10x22	6-18	3
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Elymus giganteus Vahl.
wildrye

1211	108491	'Volga'	3-18-70	PR	3	3	3	1	35-28x34	6-18	5
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Elymus sabulosus Bieb.

1198	BN-8367-65	USSR	9-17-69	PR	3	3	3	1	36-30x40	---	3
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Elymus triticoides Buckl.

1789	C-77	Los Lunas PMC	2-18-70	PR	3	7	7	1	22x100	---	5
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Elyonurus hirsutus Munro.

1353	PI-271565	India	5-2-67	PR	5	7	7	1	40-30x30	10-15	5
1354	PI-271566	India	5-2-67	PR	3	3	3	1	42-30x30	10-15	3

Eragrostis atherstonei

1303	PI-276033	New Mexico PMC	5-3-67	PB	7	7	5	1	44-16x44	---	5
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Eragrostis curvula Schrad. Nees.
weeping lovegrass

718	PI-295689	So. Africa	5-26-71	PB	3	3	1	1	60-28x40	10-28	3
718		So. Africa	5-26-71	PB	3	3	1	1	60-24x40	10-28	3
718		So. Africa	5-26-71	PB	3	3	1	1	56-24x40	10-28	3
728	PI-295700	So. Africa	5-5-67	PB	3	3	3	1	40-16x23	7-1	3
729	PI-295703	So. Africa	5-26-71	PB	3	3	1	1	54-24x40	10-28	3
729		So. Africa	5-26-71	PB	3	3	3	1	56-28x40	10-28	3
1365	F-3942	So. Africa	5-26-71	PB	5	7	7	1	54-20x40	10-28	7
	PI-299924										
1366	F-3943	So. Africa	5-26-71	PB	3	3	5	1	56-32x40	10-28	3
	PI-299925										
1367		So. Africa	5-26-71	PB	5	7	7	1	44-13x30	10-28	7
1690	F-4042	So. Africa	5-26-71	PB	5	7	1	1	56-24x40	10-15	5
	PI-234209										
2803		So. Africa	5-26-71	PB	1	3	9	1	- 19x40	---	3

Initial Observation Area - Grasses - 1971 - (Cont'd)

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PMT No.	PI or Other No.	Origin	Date Planted:	Growth Type	Leaf Vigor:	Seed Prod:	Res. to Disease:	Measurement:	Maturity Date:	Stand Ratings
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Eragrostis palmeri S. Wats.
Rio Grande lovegrass

1910		Del Rio, Texas	5-20-70	PB	7	7	9	1	38-13x32	---	7
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Eragrostis superba
Wilman lovegrass

1140	PI-295704	So. Africa	5-2-67	PB	1	3	3	1	45-30x30	8-15	3
1405	PI-299959	So. Africa	5-2-67	PB	1	5	3	1	45-30x30	8-15	3

Eragrostis trichoides (Nutt.) Wood
sand lovegrass

738		'Common'	5-2-67	PB	5	5	1	1	40-16x20	10-1	3
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Eragrostis pilifera Scheele.
sandhill lovegrass

338		'Mason'	5-2-67	PB	3	3	1	1	50-20x27	10-10	3
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Eremochloa ophiuroides (Munro.) Hack.
centipede grass

892	PM-0-145	'Oklawm'	6-26-65	PS	7	7	9	1	- 4x4	---	7
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Euchlaena perennis Hitchc.
teosente

2516	AM-2093	Georgia PNC	4-30-71	PR	1	3	9	1	- 30x24	Froze	1
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Festuca arundinacea Schreb.
tall fescue

2229	PI-292604	Israel	2-18-70	PB	7	5	7	5	- 15x33	---	3
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Festuca elatior L.
meadow fescue

2230	BN-15609-67	Algeria	2-18-70	PB	1	3	7	1	22-8x8	6-8	3
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Hemarthria altissima

1532	PI-299993	So. Africa	7-20-70	PS	7	5	7	1	- 16x40	9-1	3
2167	PI-299994	So. Africa	7-21-69	PS	5	5	7	1	15x53	9-1	3

Heteropogon contortus L. Vaouv. ex & Roem & Schult.
tanglehead

2526		Benavides, Texas	4-30-71	PB	1	3	9	1	- 60x60	11-15	5
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Hordeum bulbosum L.
bulbous barley

2142	PI-287840	Spain	2-18-70	PB	1	7	7	1	19-7x9	6-15	3
2143	PI-306731	Greece	2-18-70	WK							

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PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type:	Leaf :Vigor:	Seed :Prod:	Res. :Prod:	to :Disease:	Measurement:	Maturity :Date:	Stand :Ratings
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Leersia oryzoides L. Swartz
rice cutgrass

2383 Rosenberg, Texas 2-26-70 PR 7 7 9 3 12' ht. --- 7

Leptochloa dubia (H.B.K.) Nees.
green sprangletop

266 Junction, Texas 3-30-68 PB 5 3 5 1 42-25x30 7-20 5
608 Spur, Texas 3-20-68 PB 7 7 7 7 42-11x17 7-20 7
743 Stamford, Texas 3-20-68 PB 7 7 9 1 - 10x26 --- 5
745 Benavides, Texas 3-20-68 PB 7 7 7 1 42-16x16 7-20 7
746 Rocksprings, Texas 3-20-68 PB 7 7 7 7 - 12x12 7-20 7
748 George West, Texas 3-20-68 PB 7 7 9 7 - 13x16 --- 7
872 Eldorado, Texas 3-20-68 PB 7 7 9 7 - 16x24 --- 7

Liriope graminifolia Baker.
lilly turf

2370 AM-2357 Georgia PMC 2-2-70 PR 5 5 9 1 4" ht. --- 5

Panicum amarulum Hitchc. & Chase
shoredune panicum

1410 EN-2258 Virginia 5-2-67 PR 3 7 5 1 38-20x24 10-10 1
1411 EN-8360 Virginia 5-2-67 PR 5 7 5 1 44-28x24 10-10 3
1412 EN-8627 North Carolina 5-2-67 PR 1 3 3 1 66-28x40 10-10 3
1413 EN-14005 North Carolina 5-2-67 PR 1 7 5 1 60-36x40 10-10 3
2463 Padre Island, Texas 8-8-70 PR 3 1 5 1 - 59x126 11-24 1

Panicum amarum Ell.
bitter panicum

2464 Padre Island, Texas 8-8-70 PB 1 1 9 1 50" x 120" --- 3

Panicum antidotale Retz.
blue panicum

98 'Commercial' 5-3-68 PR 5 7 7 1 56-30x29 8-15 3
1414 PI-284151 India 5-3-68 PR 5 7 7 1 60-30x30 8-15 7
1415 PI-300034 So. Africa 5-3-68 PR 5 7 7 1 56-30x32 8-15 7
1706 PI-268410 Afghanistan 5-3-68 PR 5 7 7 1 42-30x30 9-1 7
1707 PI-271590 India 5-3-68 PR 5 7 7 1 60-40x40 9-1 7
1708 PI-271589 India 5-3-68 PR 5 7 7 1 86-50x46 6-24 5
1770 Texas A & M 5-3-68 PR 5 5 7 1 60-36x27 6-24 3
1771 Texas A & M 5-3-68 PR 5 5 7 1 54-40x35 8-15 5
1772 Texas A & M 5-3-68 PR 5 7 7 1 65-30x24 8-15 1
1773 Texas A & M 5-3-68 PR 5 5 7 1 48-30x30 8-15 5
1774 Texas A & M 5-3-68 PR 5 7 9 1 46-30x29 8-15 7
1775 Texas A & M 5-3-68 PR 5 7 9 1 53-30x28 8-15 7
1776 Texas A & M 5-3-68 PR 5 7 7 1 64-30x28 8-15 1

Initial Observation Area - Grasses - 1971 - (Cont'd)

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PMT No.	FI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Prod:Disease:	Measurement::	Maturity :Date	Stand :Ratings
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Panicum bulbosum H.B.K.
bulb panicum

611 A-12660 New Mexico FMC 3-20-68 PB 5 3 3 1 40-24x34 7-20 5

Panicum havardii Vasey.
havard panicum

1911 Andrews, Texas 5-23-69 PR 3 5 3 1 64-48x40 10-20 3

Panicum hemitomom Schult.
maiden cane

2379 Anahuac, Texas 3-10-71 PR 3 3 9 1 31" x 28" --- 1
2394 MS-2138 Miss. FMC 3-31-71 PR 3 3 9 3 23" x 72" --- 1

Panicum plenum Hitchc. & Chase
false switchgrass

979 NM-265 Los Lunas FMC 5-23-69 PR 5 7 3 1 42-18x30 10-1 5
1790 Los Lunas FMC 5-23-69 PR 5 5 3 1 34-18x30 11-1 3
1912 Sterling City, Texas 5-23-69 PR 1 3 3 1 34-20x36 10-20 3
1913 Del Rio, Texas 5-23-69 PR 5 3 3 1 48-24x36 10-20 5
1914 Del Rio, Texas 5-23-69 PR 5 7 7 1 56-20x38 11-15 5
1915 Del Rio, Texas 5-23-69 PR 5 3 3 1 44-22x38 11-15 5
1918 Big Springs, Texas 5-23-69 PR 5 7 7 1 44-18x18 11-15 3

Panicum L. sp.
panicum

1271 Stonewall Co., Texas 5-3-67 Died

Panicum staphianum Fourc.

1115 PI-145794 So. Africa 5-5-66 Destroyed in 1971
1116 PI-178257 So. Africa 5-5-66 Destroyed in 1971
1117 PI-185547 So. Africa 5-5-66 Destroyed in 1971
1118 PI-190326 So. Africa 5-5-66 Destroyed in 1971
1119 PI-190327 So. Africa 5-5-66 Destroyed in 1971
1120 PI-196367 So. Africa 5-5-66 Destroyed in 1971
1121 PI-196368 So. Africa 5-5-66 Destroyed in 1971
1122 PI-198589 So. Africa 5-5-66 Destroyed in 1971
1123 PI-206371 So. Africa 5-5-66 Destroyed in 1971

Panicum virgatum L.
switchgrass

1427 'Kanlow' 5-6-70 PR 3 7 3 1 53-31x32 10-20 3
1916 Eldorado, Texas 5-23-69 PR 5 7 5 1 70-40x40 10-20 3
1917 Big Lake, Texas 5-23-69 PR 5 7 5 1 - 40x40 -- 3
1978 Temple, Texas 5-23-69 PR 5 7 3 1 88-40x40 10-20 3
2270 AM-314 Fredricksburg, Texas 5-6-70 PR 1 3 3 1 70-38x80 11-10 3
2272 SC56-32 'Carthage' 5-6-70 PR 5 3 5 1 62-34x60 10-20 1
2418 Flores Bluff, Tex 5-6-70 PR 5 3 3 1 45-40x30 10-20 3
2424 EN-10826 'Arstu' 5-16-70 PR 5 7 5 1 44-16x24 10-20 7
F-687

Initial Observation Area - Grasses - 1971 - (Cont'd)

Code:		1 - Excellent	Example: 34-22x18
P - Perennial	A - Annual	3 - Good	34 - head height
R - Rhizomatous	NG - No Germination	5 - Fair	22 - foliage height
B - Bunch	GD - Germinated-Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter killed	9 - None	@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted:	Growth Type	Leaf Vigor	Seed Prod:	Res. to Disease	to Measurement	Maturity Date	Stand Ratings
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Paspalum chromyvorhizon

2445	F-3647	Florida PMC	4-16-70	PS	7	7	7	5	30-11x24	11-1	5
	PI-310059										
2594	F-3658	Florida PMC	4-30-71	GD							
	PI-310070										

Paspalum floridanum Michx.
Florida paspalum

2336		Caldwell, Texas	5-6-70	PB	1	3	3	1	64-40x40	10-20	1
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Paspalum distichum L.
knotgrass

2274		Tahoka, Texas	5-6-70	PS	1	3	1	1	15" ht x 10'	8-3	1
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Paspalum monostachyum Vasey
gulfdune paspalum

1967		Hebbronville, Texas	5-23-69	GD							
2247		Sinton, Texas	11-17-69	PR	1	5	7	1	42x60	11-1	5
2273		Kleberg Co., Texas	5-6-70	PR	5	5	7	1	24x24		7

Paspalum notatum Flugge
bahia grass

978	MS-131	'Wilmington'	5-3-67	PS	3	3	7	1	36-12x12	10-1	1
1319	AM-1629	'Pensacola'	5-3-67	PS	3	3	7	1	26-13x30	10-1	1
1420	BN-11573	North Carolina	5-3-67	PS	3	7	7	1	25-36x12	10-1	1
1470		'Paraguay 22'	5-3-67	PS	3	3	7	1	29-12x34	9-15	1

Paspalum plicatulum Michx.
brownseed paspalum

2337		Caldwell, Texas	5-6-70	PB	3	7	1	1	28-20x40	10-20	5
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Pennesetum L. sp.

2168	PI-304751	So. Africa	6-6-69	PR	3	7	9	1	70x40	--	5
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Phalaris aquatica L.
hardinggrass

939		'Wintergreen' TAES	2-18-70	PR	3	3	3	1	32-16x16	6-1	3
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Phalaris arundinacea L.
reed canarygrass

1962	PI-316347	Tuscon PMC	2-18-70	PR	3	3	3	1	29-18x18	6-1	3
2056	PI-236525	Portugal	2-18-70	PR	3	7	5	1	30-19x19	6-1	5
2465	MS-540	Miss. PMC	11-3-70	PR	3	5	9	1	- 12x18	--	5

Phalaris arundinacea x. tuberosa

2218	PI-233707	Georgia PMC	2-18-70	PR	1	5	5	1	28-18x20	6-1	3
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Initial Observation Area - Grasses - 1971 - (Cont'd)

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S - Sod	WK - winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Prod:	Disease :Measurement:	Maturity :Date	Stand :Ratings
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Phalaris stenoptera Hack.

1963		Goldwaithe, Texas	2-18-70	PR	1	3	1	1	30-15x17	6-1	3
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Phragmites communis Trin.
common reedgrass

2359		Laredo, Texas	2-19-70	PR	3	3	9	1	78" x 21' sprd.		3
2376		Lawerance, Texas	3-1-71	PR	3	3	7	1	42" x 18' sprd.		1
2380		Anahuac, Texas	3-1-71	PR	3	3	9	1	78" ht. x 45' sprd.		3
2382		Beaumont, Texas	3-1-71	PR	3	5	9	1	75" ht. x 15' sprd.		3
2440		Clinton, Okla.	4-11-70	PR	3	5	7	1	39" ht. x 24' sprd.		3
2791	FM-K-1271	Manhattan, PMC	3-20-71	PR	5	5	9	1	41" ht. x 20' sprd.		7

Phyllostachys bambusoides Sieb.
bamboo

2352	AM-1467	Georgia PMC	1-29-70	PR	5	5	9	1	62" ht. x 28"		5
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Phyllostachys bissetti
bamboo

2351	AM-1469	Georgia PMC	1-29-70	PR	5	5	9	1	55" ht. x 30"		5
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Phyllostachys nigra Munro.
bamboo

2353	AM-2587	Georgia PMC	1-29-70	PR	5	5	9	1	50" ht. x 30"		3
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Phyllostachys sp.
bamboo

2244		Fort Worth, Texas	10-31-70	PR	3	3	9	1	27" x 15" sprd.		5
2350	AM-315	Georgia, PMC	1-29-70	PR	Died						
2360		San Antonio, Texas	2-19-70	PR	5	5	9	1	59" ht. x 19"		5
2361		San Antonio, Texas	2-19-70	PR	5	5	9	1	63" x 39"		5
2369		Abilene, Texas	2-18-70	PR	5	5	9	1	22" x 16"		5
2788		Fort worth, Texas	3-20-71	PR	5	5	9	1	28" x 18"		5

Poa arachnifera Torr.
Texas bluegrass

1227		Knox City, Texas	2-70	PR	3	3	5	1	16" x 40"	6-8	3
1553		Cheyenne, Okla.	10-15-68	PR	3	5	3	1	22" x 40"	6-8	3
1534		Kingfisher Co., Okla.	10-15-68	PR	5	5	5	3	26" x 40"	6-8	5
1535		Anadarko, Okla.	10-15-68	PR	5	7	7	5	17" x 40"	6-8	5
1536		Ardmore, Okla.	10-15-68	PR	5	5	5	5	15" x 40"	6-8	5
1537		Woodward, Okla.	10-15-68	PR	5	3	5	5	24x40	6-8	5
1808		Mineral Wells, Texas	10-15-68	PR	5	5	7	7	18" x 40"	6-8	5
1808		Mineral Wells, Texas	2-18-70	PR	3	5	3	3	20" x 40"	6-8	1
1809		Knox City, Texas	10-15-68	PR	3	3	9	1	22" x 40"	--	3
1809		Knox City, Texas	2-18-70	PR	3	5	9	1	15" x 40"	--	1
2197		Anson, Texas	2-18-70	PR	3	3	3	1	19" x 40"	6-8	3
2235		Knox City, Texas	2-18-70	PR	3	3	5	1	11" x 18"	6-8	3

Initial Observation Area - Grasses - 1971 (Cont'd)

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B - Bunch	GD - Germinated - Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type:	Leaf :Vigor:	Seed :Prod:	Res. :Prod:	to :Disease:	Measurement:	Maturity :Date:	Stand :Ratings:
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Setaria flabellata Stapf.
bristlegrass

2152 PI-300109 So. Africa 5-23-69 PR 5 5 5 1 36-20x26 8-15 7

Setaria magna Griseb.
giant bristlegrass

2153 BN-17107 Delaware 5-23-69 WK

Sorghastrum nutans (L.) Nash.
indiangrass

802	Lampassas, Texas	5-3-68	PR	3	3	3	1	62-30x36	11-1	1
809	'Tejas'	5-3-68	PR	7	7	3	1	40-20x30	10-20	3
875	'Cheyenne'	5-3-68	PR	5	5	5	1	50-18x36	10-10	1
1071	Okla. State Univ.	5-3-68	PR	3	3	5	1	58-20x30	10-20	1
1114	'Illano'	5-3-68	PR	7	7	5	1	55-16x30	10-1	5
1324	Waurika, Okla.	5-3-68	PR	5	3	3	1	40-26x30	10-10	3
1325	San Antonio, Texas	5-3-68	PR	5	3	7	1	48-30x36	11-10	3
1463	KSU #1 Kansas	5-3-68	PR	7	3	7	1	40-26x36	11-1	7
1464	KSU #2 Kansas	5-3-68	PR	7	7	7	1	40-14x22	10-10	5
1465	KSU #3 Kansas	5-3-68	PR	5	7	7	1	40-16x30	10-10	3
1465	KSU #3 Kansas	5-3-68	PR	3	7	5	1	42-20x30	10-10	3
1713	Durant, Okla.	5-3-68	PR	5	7	7	1	60-18x36	11-1	7
1714	Waurika, Okla.	5-3-68	PR	5	3	5	1	50-18x36	11-1	5
1715	McAlister, Okla.	5-3-68	PR	3	5	7	1	55-20x24	10-20	5
1716	McAlister, Okla.	5-3-68	PR	5	7	7	1	50-18x30	11-1	3
1717	Hughes Co., Okla.	5-3-68	PR	3	7	5	1	55-20x30	10-20	5
1718	Ardmore, Okla.	5-3-68	PR	5	3	5	1	52-18x30	10-20	5
1719	Grady Co., Okla.	5-3-68	PR	5	3	7	1	60-24x30	10-10	1
1720	Hughes Co., Okla.	5-3-68	PR	7	7	7	1	48-16x16	10-20	5
1721	Atoka, Okla.	5-3-68	PR	5	3	3	1	60-20x30	10-20	1
1722	Eldorado, Ark.	5-3-68	PR	3	3	7	1	52-18x20	10-20	5
1723	Waurika, Okla.	5-3-68	PR	5	3	3	1	50-20x30	10-20	1
1724	Stephens Co., Okla.	5-3-68	PR	5	3	7	1	55-26x30	10-20	1
1725	Atoka, Okla.	5-3-68	PR	3	7	7	1	56-20x36	10-20	3
1726	Grady Co., Okla.	5-3-68	PR	5	7	7	1	50-18x36	10-20	1
1727	Pontotoc, Okla.	5-3-68	PR	5	7	7	1	55-20x36	10-20	1
1728	Bryan Co., Okla.	5-3-68	PR	5	7	3	1	50-21x36	10-10	1
1729	Ardmore, Okla.	5-3-68	PR	7	3	7	1	56-20x36	10-20	3
1730	Stephens Co., Okla.	5-3-68	PR	7	7	7	1	48-20x30	10-20	3
1801	'Osage'	5-3-68	PR	7	7	7	1	45-16x30	10-10	1

Spartina pectinata Link.
prairie cordgrass

2389	Clinton, Okla.	3-13-70	PR	3	3	7	1	63-31x31	11-24	3
2389	Clinton, Okla.	4-30-71	PR	7	7	7	1	- 36x40	--	5
2448	FMK-1126 Lobette Co., Kan.	4-20-70	PR	3	5	7	1	50-42x50	11-24	1
2448	FMK-1126 Lobette Co., Kan.	4-31-71	PR	1	7	7	1	52-26x40	11-24	3
2449	FMK-815 Wagoner Co., Okla.	4-20-70	PR	3	3	7	1	55-67x67	11-24	3
2449	FMK-815 Wagoner Co., Okla.	4-30-71	PR	1	5	7	1	60-32x40	11-24	3
2450	FMK-951 Alfalfa Co., Okla.	4-20-70	PR	3	5	7	1	59-59x67	11-24	3
2450	FMK-951 Alfalfa Co., Okla.	4-30-71	PR	1	3	5	1	56-34x40	11-24	3
2451	FMK-926 Shawnee, Okla.	4-20-70	PR	3	3	7	1	63-63x71	11-24	3
2451	FMK-926 Shawnee, Okla.	4-20-70	PR	1	1	5	1	54-30x40	11-24	1

Initial Observation Area - Grasses - 1971 (Cont'd)

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B - Bunch	GD - Germinated - Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter Killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Prod:Disease:	Measurement ::	Maturity :Date	Stand :Ratings
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Spartina pectinata Link.
prairie cordgrass

2452	FMK-1137	Montgomery Co., Kan.	4-20-70	PR	3	7	1	50-40x39	11-24	3
2452	FMK-1137	Montgomery Co., Kan.	4-30-71	PR	3	3	1	52-28x40	11-24	5
2618		Canadian, Texas	4-30-71	PR	5	5	1	48-20x42	11-24	7
2619		Miami, Texas	4-30-71	PR	5	5	1	48-22x40	11-24	7
2620		Stinnett, Texas	4-30-71	PR	1	5	1	48-24x40	11-24	5
2621		Wheeler, Texas	4-30-71	PR	3	5	1	48-30x30	11-24	7
2622		Amarillo, Texas	4-30-71	PR	5	7	1	36-10x30	11-24	7
2623		Hartley, Texas	4-30-71	PR	5	7	1	32-10x40	11-24	7
2624		Vega, Texas	4-30-71	PR	5	7	1	42-10x22	11-24	7

Sporobolus airoides (Torr.) Torr.
alkali sacaton

155		Dell City, Texas	5-23-69	PB	1	3	1	40-20x40	10-20	5
155		Dell City, Texas	5-23-69	PB	3	7	1	40-15x38	10-20	3
155		Dell City, Texas	5-23-69	PB	3	3	1	44-18x38	10-20	3
155		Dell City, Texas	5-3-68	PB	1	3	1	50-20x40	10-20	3
207		Lubbock, Texas	5-23-69	PB	3	3	1	40-18x40	10-20	3
207		Lubbock, Texas	5-3-68	PB	5	3	1	36-18x30	10-20	7
228		Spur, Texas	5-23-69	PB	7	7	1	34-18x36	10-20	7
228		Spur, Texas	5-23-69	PB	3	3	1	36-11x34	10-20	3
228		Spur, Texas	5-3-68	PB	7	7	1	36-10x18	10-20	3
270		Pecos, Texas	5-23-69	PB	5	7	1	36-13x38	10-20	3
326		Kenedy Co., Texas	5-23-69	PB	3	3	1	54-20x40	11-1	3
326		Kenedy Co., Texas	5-3-68	PB	3	3	1	50-40x40	11-1	3
382		Pecos, Texas	5-23-69	PB	5	7	1	48-15x32	10-20	3
382		Pecos, Texas	5-3-68	PB	5	3	1	42-30x36	10-20	3
386		Dell City, Texas	5-23-69	NG						
624		Pecos, Texas	5-23-69	PB	5	7	1	44-17x36	10-20	7
811		Lubbock, Texas	5-23-69	PB	5	7	1	40-15x36	10-1	5
811		Lubbock, Texas	5-3-68	PB	3	3	1	36-20x30	10-20	3
816		Rankin, Texas	5-23-69	PB	5	7	1	40-15x40	10-20	5
1031		Big Springs, Texas	5-23-69	PB	3	7	1	38-18x40	10-20	5
1032		Big Springs, Texas	5-11-69	PB	5	3	1	44-17x40	10-20	3
1033		Stanton, Texas	5-23-69	PB	1	3	1	42-16x40	10-20	3
1321		Tilden, Texas	5-23-69	PB	7	3	1	44-10x40	10-20	3
1322		Randlett, Okla.	5-23-69	PB	3	3	1	40-15x38	10-20	3
1323		Randlett, Okla.	5-23-69	NG						
1731		Jackson Co., Okla.	5-23-69	PB	5	7	1	28-20x30	10-20	3
1732		Jackson Co., Okla.	5-3-68	PB	5	7	1	46-20x40	10-20	7
1733		Sayre, Okla.	5-23-69	PB	5	3	1	33-16x40	10-20	5
1733		Sayre, Okla.	5-3-68	PB	5	3	1	32-20x30	10-20	1
1734		Harper Co., Okla.	5-23-69	PB	5	7	1	30-14x38	10-20	7
1734		Harper Co., Okla.	5-3-68	PB	7	7	1	40-20x36	10-20	3
1735		Comanche Co., Okla.	5-23-69	PB	5	7	1	34-14x36	10-20	5
1735		Comanche Co., Okla.	5-3-68	PB	5	7	1	30-16x30	10-20	3
1736		Woodward, Okla.	5-3-68	PB	7	7	1	30-16x30	10-20	3
1737		Harper Co., Okla.	5-23-69	PB	3	7	1	36-16x36	10-20	3
1737		Harper Co., Okla.	5-3-68	PB	7	7	1	30-16x30	10-20	3
1738		Blaine Co., Okla.	5-23-69	PB	5	7	1	44-16x36	10-20	5
1738		Blaine Co., Okla.	5-3-68	PB	7	7	1	36-12x30	10-20	3
1739		Harper Co., Okla.	5-23-69	PB	5	7	1	40-16x38	10-20	3
1739		Harper Co., Okla.	5-3-68	PB	7	7	1	36-12x28	10-20	3

Initial Observation Area - Grasses - 1971 (Cont'd)

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FMT	PI or	Date	Growth	Leaf	Seed	Res. to	Maturity	Stand	
No.	Other No.	Planted:	Type	Vigor:	Prod:	Prod:Disease:	Measurement:	Date	Ratings

Sporobolus airoides (Torr.) Torr.
alkali sacaton

1892		Jayton, Texas	5-23-69	PB	3	3	5	1	42-18x40	10-20	1
1893		Canadian, Texas	5-23-69	PB	5	7	3	1	48-17x40	10-20	3
1894		Miami, Texas	5-23-69	PB	5	7	3	1	36-15x40	10-20	3
1895		Childress, Texas	5-23-69	PB	3	7	7	1	40-13x36	10-20	7
1896		Clarendon, Texas	5-23-69	PB	3	7	7	1	36-14x40	10-20	5
1897		Wellington, Texas	5-23-69	PB	5	7	3	1	34-18x40	10-20	5
1898		Pampa, Texas	5-23-69	PB	5	7	5	1	34-18x40	10-20	5
1899		Stinnett, Texas	5-23-69	PB	5	7	3	1	40-16x38	10-20	5
1900		Muleshoe, Texas	5-23-69	PB	5	3	3	1	48-16x38	10-20	7
1901		Archer City, Texas	5-23-69	PB	5	7	7	1	28-13x32	10-20	5
2282		Rotan, Texas	5-6-70	PB	3	3	1	1	44-36x66	10-20	3

Sporobolus contractus Hitchc.
spike dropseed

1320		Monahans, Texas	5-2-67	PB	7	7	7	1	32-20x25	10-20	5
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Sporobolus fimbriatus

1422	PI-300123	So. Africa	5-2-67	PB	1	3	3	1	46-22x40	10-1	3
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Sporobolus flexuosus (Thurb.) Rydb.
mesa dropseed

446		Van Horn, Texas	5-2-67	PB	7	7	7	1	26-14x18	10-1	5
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Sporobolus gigantea Nash.
giant dropseed

458		Plains, Texas	5-2-67	PB	5	7	7	1	36-16x16	10-20	5
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Sporobolus usitatus Scribn.

2333	NM-164	Los Lunas PNC	5-6-70	PB	7	7	3	1	30-18x40	8-10	7
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Sporobolus virginicus (L.) Kunth.

2283		Neuces Co., Texas	5-6-70	WK							
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Stipa barbata Desf.

2066	PI-32072	Iran	2-18-70	PB	7	7	7	3	36-10x24	6-8	5
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Stipa capillata L.

2060	PI-325477	Ukraine	2-18-70	PB	5	7	3	1	25-12x12	6-8	7
2065	PI-325478	USSR	2-18-70	PB	7	7	3	1	29-10x18	8-3	3

Stipa columbiana Macoun.
Columbia needlegrass

2198		San Angelo, Texas	2-18-70	PB	5	3	9	3	-- 21x38		3
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Stipa kirghisorum p. Smirn.

2064	PI-310429	USSR	2-18-70	PB	7	7	7	3	16-4x4	4-26	7
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Initial Observation Area - Grasses - 1971 (Cont'd)

Code:		1 - Excellent	Example: 34-22x18
P - Perennial	A - Annual	3 - Good	34 - head height
R - Rhizomatous	NG - No Germination	5 - Fair	22 - foliage height
B - Bunch	GD - Germinated - Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type :	Leaf :Vigor:	Seed :Prod:	Res. :Prod:	to :Disease:	Measurement:	Maturity :Date :	Stand :Ratings
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Stipa lagascae Roem & Schult.

2063 PI-330723 Iran 2-18-70 PB 7 7 7 3 36-6x6 6-8 7

Stipa tortillis Desf.

2061 PI-330682 Israel 2-18-70 WK

Tetrachne dregei Nees.

2157 PI-15520 So. Africa 12-23-69 PB 1 3 3 1 54-24x40 8-3 3

Tetrapogon mossambicensis Chippin. ex. B.S. (K. Schum)

2160 PI-300139 So. Africa 5-23-69 A 1 5 3 1 44-18x34 10-27 1

Tricholaena rosea Nees.
natal grass

1250 Costa Rica 5-2-67 PB 1 3 3 1 28x48 11-15 7
2637 Pearsall, Texas 4-30-71 PB 1 3 3 1 24-12x30 10-1 5

Tridens stricta (Nutt.) Nash
thick spike tridens

2747 Waco, Texas 4-30-71 PB 3 5 3 1 48-16x30 10-28 1

Tripsacum dactyloides (L.) L.
eastern gamagrass

823 Clarksville, Texas 3-6-68 PB 3 3 7 1 42-16x40 6-24 3
824 Clarksville, Texas 3-6-68 PB 5 7 5 1 50-24x40 6-24 3
825 Sulphur Springs, Texas 3-6-68 PB 5 3 7 1 42-24x30 6-24 3
826 Crosbyton, Texas 3-6-68 PB 3 7 7 1 40-20x40 6-24 3
827 Lufkin, Texas 3-6-68 PB 3 7 7 1 50-24x40 6-24 3

828 Groesbeck, Texas 3-6-68 PB 5 5 9 1 50-26x40 - 3
829 Rosenberg, Texas 3-6-68 PB 1 3 7 1 42-28x40 8-15 1
830 Liberty, Texas 3-6-68 PB 5 5 7 1 40-24x40 7-15 3
331 Waxahatchie, Texas 3-6-68 PB 5 7 7 1 52-24x30 6-1 1
832 San Marcos, Texas 3-6-68 PB 5 3 5 1 52-26x40 7-15 1

833 Waco, Texas 3-6-68 PB 5 7 5 1 52-25x40 8-1 1
1213 AM-1404 'Bolgée' 3-6-68 PB 5 7 7 1 48-24x40 7-15 3
1466 PMK-24 Kansas PMC 3-6-68 PB 7 7 7 1 46-20x30 8-1 1
1588 Nowata, Okla. 3-6-68 PB 5 3 7 1 52-28x40 8-1 1
1589 Nowata, Okla. 3-6-68 PB 5 7 7 1 30-30x30 6-24 7

1590 Nowata, Okla. 3-6-68 PB 3 7 7 1 42-18x30 6-1 1
1591 Ardmore, Okla. 3-6-68 PB 1 3 7 1 50-28x40 6-24 3
1592 Ardmore, Okla. 3-6-68 NG
1593 Adaire Co., Okla. 3-6-68 PB 7 7 7 1 50-28x40 6-24 7
1598 Bryan Co., Okla. 3-6-68 PB 3 3 7 1 40-22x30 8-1 5

1599 Bryan Co., Okla. 3-6-68 PB 5 7 7 1 36-18x30 8-1 3
1600 Pawhuska, Okla. 3-6-68 PB 5 3 7 1 48-24x40 8-1 3
1602 Blaine Co., Okla. 3-6-68 PB 5 7 7 1 42-18x40 10-20 5
1603 Okmulgee, Okla. 3-6-68 PB 5 7 7 1 38-16x30 6-24 7
1605 Okmulgee, Okla. 3-6-68 PB 5 3 7 1 42-20x40 6-24 3

Initial Observation Area - Grasses - 1971 (Cont'd)

Code:		1 - Excellent	Example: 34-22x18
P - Perennial	A - Annual	3 - Good	34 - head height
R - Rhizomatous	NG - No Germination	5 - Fair	22 - foliage height
B - Bunch	GD - Germinated - Died	7 - Poor	18 - foliage width
S - Sod	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted:	Growth :Type	Leaf :Vigor:	Seed :Prod:	Res. to :Disease:	to :Measurement:	Maturity :Date	Stand :Ratings
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Tripsacum dactyloides (L.) L.
eastern gamagrass

1606		Mayes Co., Okla.	3-6-68	PS	5	7	7	1	42-18x40	9-3	5
1607		Mayes Co., Okla.	3-6-68	PS	5	7	7	1	40-16x20	8-1	3
1609		Chandler, Okla.	3-6-68	PS	5	7	7	1	50-20x40	6-24	3
1610		Chandler, Okla.	3-6-68	PS	5	7	7	1	50-20x40	6-24	7
1612		Ada, Okla.	3-6-68	PS	3	7	7	1	50-26x40	6-24	3
1613		Ada, Okla.	3-6-68	PS	5	7	7	1	40-20x30	6-24	7
1614		Rush Springs, Okla.	3-6-68	PS	7	7	7	1	42-18x30	6-24	7
1615		Noble Co., Okla.	3-6-68	PS	3	3	7	1	50-30x40	6-24	5
1616		Noble Co., Okla.	3-6-68	PS	5	7	7	1	48-32x40	8-1	7
1617		Grant Co., Okla.	3-6-68	PS	7	7	7	1	46-24x40	8-15	3
1618		Wagoner Co., Okla.	3-6-68	PS	3	7	5	1	60-25x40	8-1	7
1619		Wagoner Co., Okla.	3-6-68	PS	3	3	7	1	46-24x40	8-1	7
1620		Wagoner Co., Okla.	3-6-68	PS	5	7	7	1	40-16x30	8-1	5
1621		Talihina, Okla.	3-6-68	PS	1	3	7	1	36-28x30	9-1	5
1622		Talihina, Okla.	3-6-68	PS	5	3	7	1	40-28x40	7-1	7
1623		Texas Co., Okla.	3-6-68	PS	5	7	7	1	42-20x40	6-24	3
1624		Texas Co., Okla.	3-6-68	PS	5	7	7	1	42-18x40	8-1	3
1625		Miami, Okla.	3-6-68	PS	7	7	7	1	42-18x30	8-1	7
1626		Miami, Okla.	3-6-68	PS	5	7	7	1	56-18x40	8-1	7
1805	MS-423	Miss. PMC	3-6-68	PS	7	7	7	1	50-20x20	7-1	7
1806	MS-447	Miss. PMC	3-6-68	PS	1	3	5	1	60-40x40	6-24	7

Uniola paniculata L.
sea oats

2286		Nueces Co., Texas	5-6-70	WK							
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Urochloa mosambicensis (Hack.) Dandy

2164	PI-3114886	So. Africa	5-23-69	A	3	3	3	1	46-46x32	10-20	3
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Initial Observational Area - Legumes & Forbs - 1971

Code:				Example: 34 - 22x18			
P - Perennial	A - Annual	1 - Excellent		34 - head height			
B - Bunch	V - Vine	3 - Good		22 - foliage height			
S - Sod	R - Reseeding	5 - Fair		18 - foliage width			
NG- No Germination	GD - Germinated & Died	7 - Poor		■ foliage height			
WA- Winter Annual	WK - Winter killed	9 - None					

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Stand :Stand	Seedling :Vigor	Bloom :Date	:Measurement	Seed :Prod
<u>Acacia angustissima</u> (Mill) Kuntze									
1483		San Angelo, Texas	4-30-71	GD					
2466		Pearsall, Texas	4-30-71	-	7	3	10-28	22x40	7
<u>Acacia greggii</u> Gray									
2395		Archer City, Texas	5-6-70	PV	5	3	8-10	3"x60"	7
<u>Amblyolepis sertigera</u> DC. Huisache daisy									
2433		Waco, Texas	5-6-70	WA	7	3	4-15	10x30	3
<u>Belamcandia chinensis</u> DC. blackberry lilly									
2339	AM-2356	Miss PMC	2-2-70	PB	3	3	10-1	30x40	1
<u>Cassia alata</u> (Penn) Cory & Parks senna									
988		Florida PMC	5-6-70	AB	7	5	-	57"x42"	9
<u>Centaurea americana</u> Nutt. American basket flower									
2309		Waco, Texas	5-6-70	WA	3	3		26"x15"	5
<u>Centrosema virginianum</u> (L.) Benth. coastal butterfly pea									
2487		Pearsall, Texas	4-30-71	PV	5	3	11-1	9"x40"	3
<u>Chamaecrista fasciculata</u> Michx. showy partridgepea									
1985		Throckmorton, Texas	4-30-71	AB	1	1	11-1	34x50	1
2499		Pearsall, Texas	4-30-71	AB	3	3	11-1	25x40	1
<u>Chamaecrista</u> sp. Linn. partridgepea									
2310		Waco, Texas	5-6-70	AB	5	1	10-20	23x36	1
<u>Clitoria rubiginosa</u> Guss. ex Pers. pigeonwings									
2783	PI-298605 EN-15317	Taiwan, NPMC	4-30-71	PV	3	7	-	20x40	9
<u>Clitoria ternata</u> L. Asian pigeonwings									
1512	PI-283233	NPMC	4-30-71	PV	3	3	8-6	22x40	3
1744	PI-275316	NPMC	4-30-71	PV	5	3	8-6	20x40	3
2784	PI-283237	NPMC	4-30-71	PV	5	1	6-28	20x40	1
<u>Coronilla varia</u> Linn. crownvetch									
1502		'Penngift'	5-15-67	PB	7	7	7-1	4x4	9
1503		'Chemung'	5-15-67	PB	7	7	7-1	$\frac{1}{2}$ " x4"	9
<u>Dalea oaxacana</u> guadalupe dalea									
2241	A-8165	NM PMC	9-22-69	PB	3	3	9-15	16x20	5
2241	A-8165	NM PMC	4-23-71	PB	5	7	-	4x4	9

Initial Observational Area - Legumes & Forbs - 1971

Code:

P - Perennial	A - Annual	1 - Excellent	Example: 34 - 22x18
B - Bunch	V - Vine	3 - Good	34 - head height
S - Sod	R - Reseeding	5 - Fair	22 - foliage height
NG- No Germination	GD - Germinated & Died	7 - Poor	18 - foliage width
WA- Winter Annual	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Stand	Seedling :Vigor	Bloom :Date	:Measurement	Seed :Prod
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Desmanthus illinoensis Michx.
Illinois bundleflower

1484		San Angelo, Texas	4-30-71	PB	3	3	7-1	20x30	3
1485		Hamilton, Texas	5-15-67	PB	3	3	7-1	45-22x30	3
2373		Kansas PMC	4-30-71	PB	1	1	7-1	24x30	3
2373		Kansas PMC	5-6-70	PB	3	3	7-1	20x32	5
2401		Colorado Co., Texas	5-6-70	PB	3	3	8-1	26x40	3
2402		Columbus, Texas	5-6-70	PB	3	1	8-1	35x40	3
2402		Columbus, Texas	4-30-71	PB	3	3	6-28	18x30	3
2403		New Boston, Texas	4-30-71	PB	5	3	6-28	8x36	3
2403		New Boston, Texas	5-6-70	PB	3	1	8-1	24x48	3
2502		Cuero, Texas	4-30-71	PB	7	5	7-1	8x40	3

Desmanthus obtusus Watts.
blunt pod bundleflower

1890		Victoria, Texas	4-30-71	AV	5	3	6-28	3"x40"	3
1890		Victoria, Texas	5-23-69	AV	7	3	6-28	2"x60"	7
2313		Hondo, Texas	5-6-70	AV	3	3	7-1	10"x54"	5
2404		Victoria, Texas	4-30-71	AV	7	5	8-5	3"x20"	7
2405		Cuero, Texas	4-30-71	AV	3	3	6-28	3"x40"	1
2405		Cuero, Texas	5-6-70	AV	1	1	8-10	8"x90"	3
2406		Hondo, Texas	5-6-70	AV	3	3	8-10	26"x50"	1
2407		Victoria, Texas	4-30-71	AV	3	3	6-28	15"x40"	1
2407		Victoria, Texas	5-6-70	AV	7	3	8-10	1"x40"	5

Desmanthus virgatus (depressus)(Willd.) B. L. Turner
prostrate bundleflower

2408		Cuero, Texas	5-6-70	PV	7	3	8-10	2"x54"	5
2408		Cuero, Texas	5-27-71	PV	5	3	8-10	2"x50"	5
2408		Cuero, Texas	4-30-71	PV	5	3	6-28	12"x40"	1
2409		Hondo, Texas	4-30-71	PV	7	5	6-28	4"x40"	3
2409		Hondo, Texas	5-6-70	PV	7	3	6-28	10"x24"	7
2503		Hondo, Texas	4-30-71	PV	5	5	7-1	12"x38"	5
2504		Pearsall, Texas	4-30-71	NG					

Desmanthus virgatus (L.) Willd.
prostrate bundleflower

2505		Beeville, Tex.	4-30-71	PV	7	3	8-6	20"x40"	3
2506		Cuero, Texas	4-30-71	PV	5	3	8-6	6"x40"	3

Desmodium adscendens (Sw.) DC.

2760	PI-271671	NPMC	4-30-71	PV	1	5	-	10"x60"	9
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Desmodium angustifolium (HBK) DC.
tickclover

1511	PI-316210	NPMC	4-30-71	PB	7	7	8-15	40"x40"	5
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Desmodium axillare (Sw.) DC.
tickclover

2756	PI-188559	NPMC	4-30-71	PV	7	5	11-15	4x80	9
2763	PI-312172	NPMC	4-30-71	PV	7	5	11-15	10x60	9

Desmodium cinerascens Gray
tickclover

2759	PI-282691	Mexico	4-30-71	PB	3	1	10-28	90x40	9
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Initial Observational Area - Legumes & Forbs - 1971

Code:	BB - Biennial Bunch		
P - Perennial	A - Annual	1 - Excellent	Example: 34 - 22x18
B - Bunch	V - Vine	3 - Good	34 - head height
S - Sod	R - Reseeding	5 - Fair	22 - foliage height
NG- No Germination	GD - Germinated & Died	7 - Poor	18 - foliage width
WA- Winter Annual	WK - Winter killed	9 - None	@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Stand :Stand	Seedling :Vigor	Bloom :Date	Seed :Measurment	Seed :Prod
<u>Desmodium cinereum</u> (HBK.) DC. tickclover									
2758	PI-311104	NPMC	4-30-71	GD					
2766	PI-312170	NPMC	4-30-71	GD					
<u>Desmodium intortum</u> (Mill.) Urb. silver leaf desmodium									
2764	PI-312129	NPMC	4-30-71	PB	7	5	10-15	36x40	9
2765	PI-311122	NPMC	4-30-71	PB	7	5	11-15	32x40	9
<u>Desmodium paniculatum</u> (L.) DC. Clanton tickclover									
2314	AM-100	Georgia PMC	4-30-71	PV	7	3	--	4"x4"	9
<u>Desmodium</u> sp. Desv.									
2315		Knox City, Texas	4-30-71	AB	5	3	8-6	96"x40"	3
2757	PI-319471	NPMC	4-30-71	PB	7	3	11-15	68"x40"	9
2761	PI-317895	NPMC	4-30-71	PB	3	7	11-15	80"x40"	9
2762	PI-312169	NPMC	4-30-71	PB	7	3	10-28	40"x40"	7
<u>Erythrina herbacea</u> L.									
2410		Goliad, Texas	5-6-70	WK					
<u>Galactia canescans</u> Benth. hoary milkpea									
2522		Pearsall, Texas	4-30-71	PV	7	5	8-6	2"x40"	5
<u>Galactia grayi</u> Vail gray milkpea									
2523		Pearsall, Texas	4-30-71	PV	5	3	8-6	2"x40"	5
<u>Galactia</u> sp. P. Br. milkpea									
2601		Pearsall, Texas	4-30-71	PV	7	7	9-1	4x40	7
<u>Galactia texana</u> (Scheele) Gray Texas milkpea									
2396		Cuero, Texas	4-30-71	PV	5	5	9-1	1x30	7
<u>Gilia rubra</u> L. (Wherry) true Texas plume									
1965		Bonham, Texas	5-6-71	BB	1	1	3-19	40"x20"	1
<u>Gomphrena globosa</u> L. globe amaranth									
2644		Waco, Texas	4-30-70	GD					
<u>Helianthus argophyllus</u> T. & G. silverleaf sunflower									
2413		Padre Island, Texas	5-6-70	AB	5	3	9-27	95"x120"	3

Initial Observational Area - Legumes & Forgs - 1971

Code:

P- Perennial	A - Annual	1 - Excellent	Example: 34 - 22x18
B - Bunch	V - Vine	3 - Good	34 - head height
S - Sod	R - Reseeding	5 - Fair	22 - foliage height
NG -No Germination	GD - Germinated & Died	7 - Poor	18 - foliage width
WA -Winter Annual	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Stand	Seedling :Vigor	Bloom :Date	:Measurment	Seed :Prod
<u>Helianthus mollis</u> Lam. ashy sunflower									
2524		Omulgee, Okla.	4-30-71	PR	7	7	9-1	16"x6"	9
<u>Helianthus petiolaris</u> Nutt. plains sunflower									
2525		Waco, Texas	4-30-71	AB	5	5	7-1	60"x40"	3
<u>Helianthemum variable</u> Spach. variable sunflower									
1812 BN-14604		NPMC	3-13-69	PB	5	5	4-1-	3"x30"	5
<u>Indigofera leptosepala</u> (Nutt.) Turner western indigo									
1051		Knox City, Texas	4-30-71	PV	1	1	7-15	11"x60"	3
1051		Knox City, Texas	4-30-71	PV	3	3	7-15	8"x60"	3
1051		Knox City, Texas	4-30-71	PV	3	3	7-15	11"x60"	3
1051		Knox City, Texas	5-5-66	PV	3	3	7-15	21"x80"	3
2321		Knox City, Texas	5-6-70	PV	1	1	9-1	8"x56"	1
2527		Pearsall, Texas	4-30-71	PV	7	3	8-6	6"x60"	3
2528		Hondo, Texas	4-30-71	PV	7	3	8-6	4"x60"	3
2529		George West, Texas	4-30-71	PV	5	3	8-6	6"x60"	3
2533		Cuero, Texas	4-30-71	PV	5	3	7-15	6"x60"	3
<u>Indigofera miniata</u> (Nutt.) Turner coast indigo									
2534		Victoria, Texas	4-30-71	PV	1	1	7-15	6"x60"	3
2535		Edinburg, Texas	4-30-71	PV	5	3	7-15	9"x60"	3
<u>Indigofera miniata var leptosepala</u> (Nutt.) Turner									
2530		Beeville, Texas	4-30-71	PV	5	3	7-15	8"x60"	3
2531		Beeville, Texas	4-30-71	PV	5	3	7-15	6"x60"	3
2532		Pleasanton, Texas	4-30-71	PV	5	3	7-15	6"x60"	3
<u>Indigofera pseudotinctoria</u> false indigo									
1747 AM-325		Georgia PMC	4-30-71	PV	7	5	7-15	8"x40"	3
1767 BN-10774		NPMC	4-30-71	NG					
2322 AM-325		Georgia PMC	5-6-70	PV	7	5	9-1	4"x36"	3
<u>Indigofera suffruticosa</u> Mill. anil indigo									
1891		Victoria, Texas	5-23-69	PB	7	3	9-1	32"x32"	3
1891		Victoria, Texas	4-30-71	PB	7	5	9-1	36"x60"	3
<u>Ipomoea pes-capre</u> L. sweet morningglory									
2323		Kleberg Co., Texas	WK						
<u>Justica americana</u> (L.) Vahl. justica									
2249		Waxahachie, Texas	11-26-69	PR	5	5	6-1	10"x15"	7

Initial Observational Area - Legumes & Forbs - 1971 - (Cont'd)

Code:

P - Perennial

B - Bunch

S - Sod

NG- No Germination

WA- Winter Annual

A - Annual

V - Vine

R - Reseeding

GD - Germinated & Died

WK - Winter killed

1 - Excellent

3 - Good

5 - Fair

7 - Poor

9 - None

Example: $34 - 22 \times 18$

34 - head height

22 - foliage height

18 - foliage width

@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Seedling :Stand	Bloom :Vigor	Date :Date	Measurement :Measurement	Seed :Prod
				<u>Lespedeza bicolor</u> Turtz. <u>bicolor lespedeza</u>					
1766		Georgia PMC	3-24-69	PB	5	5	7-1	36x36	7
				<u>Lespedeza capitata</u> Michx. <u>roundhead lespedeza</u>					
1486		Jefferson Co. Okla.	4-30-71	PB	7	7	9-1	20x10	7
2250		Stillwater, Okla.	4-30-71	PB	3	3	9-1	28x20	3
2250		Stillwater, Okla.	5-6-70	PB	5	3	9-1	38x30	5
2252		Anadarko, Okla.	4-30-71	PB	1	3	9-1	28x20	3
2252		Anadarko, Okla.	5-6-70	PB	5	1	9-1	36x18	3
				<u>Lespedeza cuneata</u> (Dumont) G. Don <u>lespedeza</u>					
1878	T-2254	'Interstate'	5-23-69	PB	7	5	10-1	26x32	1
2253	AM-351	'Okinawa'	4-30-71	PB	5	3	9-1	20x13	3
2253	AM-351	'Okinawa'	5-6-70	PB	5	3	9-1	32x14	1
2254		'Interstate'	4-30-71	PB	7	3	9-1	13x30	3
2254		'Interstate'	4-30-71	PB	5	5	9-1	17x24	3
2254		'Interstate'	4-30-71	PB	5	5	9-1	16x34	3
2748	BN-14651	NPMC	4-30-71	PB	3	7	9-1	13x14	3
				<u>Lespedeza x. divaricata</u> (Nakai) T.B. Lee					
2750	PI-349420	NPMC	4-30-71	PB	5	3	9-1	24x34	3
				<u>Lespedeza japonica</u> Bailey					
1628	AM-816	Georgia PMC	2-20-68	PR	5	5	6-1	14x18	7
				<u>Lespedeza pilosa</u>					
990	PI-246771 MS-282	Miss. PMC	5-20-66	PV	5	5	9-1	2x20	5
990	PI-246771 MS-282	Miss. PMC	4-30-71	PV	3	3	9-1	5x30	3
				<u>Lespedeza procumbens</u> Michx. <u>trailing lespedeza</u>					
2255		San Marcos, Texas	5-6-70	PV	7	5	7-1	2x28	7
2537		San Marcos, Texas	4-30-71	PV	5	3	9-10	6x38	3
				<u>Lespedeza serpens</u>					
1748	PI-297385 AM-1592	Georgia PMC	4-30-71	PV	7	3	9-1	3x18	3
				<u>Lespedeza tomentosa</u> (Thumb.) Sieb ex Maxim <u>wooly lespedeza</u>					
2751	PI-318641	'Gaw-ssari'	4-30-71	PB	7	5	9-1	18x18	5
2752	PI-111200	NPMC	4-30-71	PB	7	5	9-1	13x6	7
2753	PI-349427	NPMC	4-30-71	PB	7	5	9-1	20x5	5
2754	BN-1130	NPMC	4-30-71	PB	5	7	9-1	20x5	3
				<u>Lespedeza violacea</u> (L.) Pers. <u>violet lespedeza</u>					
2415		Junction, Texas	5-6-70	PV	7	3	10-20	8x36	3

Initial Observational Area - Legumes & Forbs - 1971 - (Cont'd)

Code:

P - Perennial	A - Annual	1 - Excellent	Example: 34 - 22x18
B - Bunch	V - Vine	3 - Good	34 - head height
S - Sod	R - Reseeding	5 - Fair	22 - foliage height
NG -No Germination	GD - Germinated & Died	7 - Poor	18 - foliage width
WA -Winter Annual	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Stand	Seeding :Vigor	Bloom :Date	:Measurement	Seed :Prod
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Lespedeza virgata
spreading lespedeza

991	PI-218004 MS-126	Miss. PMC	5-5-66	PB	5	5	8-1	12x40	5
991	PI-218004 MS-126	Miss. PMC	4-30-71	PB	3	3	9-1	12x26	1

Lespedeza virginica (L.) Britt.

1487		Jefferson Co., Okla.	4-30-71	PB	1	1	9-1	10-28	3
2538		LaGrange, Texas	4-30-71	PB	5	5	9-15	20x34	3

Liatris punctata Hook
dotted gayfeather

2539		Larado, Texas	4-30-71	NG					
2540		Van Alstyne, Texas	4-30-71	NG					
2541		Van Alstyne, Texas	4-30-71	PB	7	7	--	4x4	9
2542		Van Alstyne, Texas	4-30-71	PB	7	7	--	4x4	9
2543		Mineral Wells, Texas	4-30-71	PB	7	7	--	4x4	9
2544		Mineral Wells, Texas	4-30-71	PB	7	7	--	4x4	9
2545		Breckenridge, Texas	4-30-71	PB	7	7	--	4x4	9
2546		Meridan, Texas	4-30-71	PB	7	7	--	3x3	9
2547		Weatherford, Texas	4-30-71	PB	7	7	--	4x4	9

Linum lewisii Pursh.
lewis flax

2549		Waco, Texas	4-30-71	PB	3	7	--	--	9
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Lotus creticus L.

2145	PI-292407	NPMC	2-18-70	D					
2146	PI-311428	NPMC	2-18-70	PV	7	3	10-20	8x80	7
2147	PI-311429	NPMC	2-18-70	PV	5	3	10-20	8x40	7

Lotus hispidus

2219	AM-1249 BN-12822	Georgia PMC	2-18-70	AV	7	5	8-11	1x24	5
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Lotus ornithopodioides

2148	PI-308038	NPMC	2-18-70	AV	5	3	5-20	1x4	5
2149	PI-310413	NPMC	2-18-70	AV	5	3	7-1	1x4	5

Lotus palustris

2150	PI-292408	NPMC	2-18-70	AV	5	3	8-11	4x24	5
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Medicago sativa L.

2233		'Pilca buta'	2-18-70	PB	3	3	6-29	25x40	3
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Menodora longiflora Gray
showy menodora

862		Bracketville, Texas	5-27-65	PB	5	5	6-25	24-14x44	3
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Menodora scrabra Gray
rough menodora

863		Sonora, Texas	5-27-65	PB	5	5	6-25	23x34	3
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Initial Observational Area - Legumes & Forbs - 1971 - (Cont')

Code:	A - Annual	1 - Excellent	Example: 34 - 22x18
P - Perennial	V - Vine	3 - Good	34 - head height
B - Bunch	R - Reseeding	5 - Fair	22 - foliage height
S - Sod	GD - Germinated & Died	7 - Poor	18 - foliage width
NG- No Germination	WK - Winter killed	9 - None	@ foliage height
WA- Winter Annual	BB - Biennial Bunch		

FMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Stand	Seedling :Vigor	Bloom :Date	:Measurement	Seed :Prod
<u>Neptunia lutea (Leavenw.) Benth</u> yellow neptunia									
2404		Victoria, Texas	5-6-70	PV	3	1	6-14	6x50	5
2404		Victoria, Texas	4-30-71	PV	1	1	6-8	3x40	1
2551		Beeville, Texas	4-30-71	PV	7	5	9-1	1x50	3
2552		Pleasanton, Texas	4-30-71	PV	7	5	8-6	1x40	5
2553		Pearsall, Texas	4-30-71	PV	7	3	9-1	2x50	3
2554		Victoria, Texas	4-30-71	PV	7	5	9-1	2x50	3
2558		Cuero, Texas	4-30-71	PV	5	3	9-1	2x50	3
2561		Bay City, Texas	4-30-71	PV	7	5	7-15	1x50	3
2740		Goliad, Texas	4-30-71	PV	5	3	7-15	2x40	5
<u>Neptunia sp. (Leavenw.)</u> neptunia									
2555		Victoria, Texas	4-30-71	AV	7	5	9-1	2x50	1
2556		Hallettsville, Texas	4-30-71	AV	7	5	9-1	2x50	3
2557		Cuero, Texas	4-30-71	AV	7	5	9-1	2x50	3
2559		Gonzales, Texas	4-30-71	AV	7	5	8-15	1x50	3
2560		Edna, Texas	4-30-71	AV	7	3	8-1	1x50	3
2562		LaGrange, Texas	4-30-71	AV	7	5	7-15	1x50	5
<u>Oenothera missouriensis Simms.</u> Ozark sundrop									
2262		Driftwood, Texas	5-6-70	PB	7	7	10-15	7x22	5
<u>Oenothera serrulata Nutt.</u> half sundrop									
864		Littlefield, Texas	5-27-65	PB	5	3	5-1	16x40	5
865		Hamilton, Texas	5-27-65	PB	5	3	5-15	16x36	3
866		Sonora, Texas	5-27-65	PB	7	1	5-1	14x30	7
867		Pearsall, Texas	5-27-65	PB	5	5	5-1	22x40	5
2263		San Marcos, Texas	5-6-70	PB	7	5	5-1	7x24	7
<u>Onobrychis viciaefolia</u> common sanfoin									
2563		Wheeler, Texas	4-30-71	PB	1	1	--	8x24	9
<u>Petalostemon candidum (Willd.) Michx.</u>									
1468		Kansas PMC	4-30-71	NG					
<u>Petalostemon microphyllum Michx.</u> longbracted prairieclover									
2419		Cuero, Texas	4-30-71	BB	5	3	8-6	24x60	3
2419		Cuero, Texas	5-6-70	BB	3	3	6-14	24x50	3
<u>Petalostemon multiflorus Nutt.</u> prairie clover									
1887		Victoria, Texas	4-30-71	PB	5	3	8-6	24x40	1
1887		Victoria, Texas	5-23-69	PB	5	5	8-11	10x25	5
1888		Victoria, Texas	4-30-71	PB	5	5	8-6	18x40	3
1888		Victoria, Texas	5-23-69	PB	7	1	7-1	23x40	3
1889		Goliad, Texas	5-23-69	WK					
2225		Boerne, Texas	4-30-71	PB	7	5	6-8	31x40	3
2226		Boerne, Texas	4-30-71	PB	5	3	8-6	12x34	3
2275		San Marcos, Texas	5-6-70	PB	5	5	8-10	8x22	3

Initial Observational Area - Legumes & Forbs - 1971 - (Cont'd)

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S - Sod	GD - Germinated & Died	7 - Poor	18 - foliage width
NG - No Germination	WK - Winter killed	9 - None	@ foliage height
WA - Winter Annual	BB - Biennial Bunch		

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Stand :Stand	Seedling :Vigor	Bloom :Date	:Measurement	Seed :Prod
<u>Petalostemon multiflorus</u> Nutt. (cont'd) prairie clover									
2240		Victoria, Texas	5-6-70	PB	5	5	8-10	18x40	1
2421		Goliad, Texas	5-6-70	PB	7	5	8-10	20x40	3
2596		Hallettsville, Tex.	4-30-71	PB	7	7	6-8	17x42	5
<u>Petalostemon purpureum</u> (Vent.) Rybd. purple prairie clover									
1469		NM PMC	4-30-71	PB	7	3	9-1	10x18	7
<u>Petalostemon</u> sp. Michx.									
2226		Fredricksberg, Texas	5-6-70	PB	7	1	10-20	18x40	3
2422		Goliad, Texas	5-6-70	PB	7	5	8-10	20x36	3
2423		Goliad, Texas	5-6-70	PB	7	5	8-10	20x30	3
2597		Cuero, Texas	4-30-71	PB	3	5	6-8	18x38	3
2598		Goliad, Texas	4-30-71	PB	5	5	8-6	18x32	3
<u>Phaseolus aureus</u> Roxbg. ricebean									
2276 AM-778		Georgia PMC	5-6-70	AB	5	3	7-1	20x31	3
<u>Phaseolus metcalfei</u> Woot. & Standl.									
2332 A-129		Arizona PMC	5-6-70	Root Rot					
<u>Phlox drummondii</u> Hook									
2804		Florida PMC	5-26-71	PB	5	5	10-1	3x3	7
<u>Psoralea tenuiflora</u> Pursh. wild alfalfa									
2280		San Marcos, Texas	5-6-70	PB	7	5	6-14	15x30	5
<u>Pueraria thumbergiana</u> Benth kudza									
2424		'Kehton'	4-1-70	PV	3	1	--	18"x12'	9
<u>Rhynchosia minima</u> L. DC. least snoutbean									
1881		Victoria, Texas	4-30-71	PV	5	3	8-15	8x60	1
1881		Victoria, Texas	5-23-69	PV	7	1	8-15	4x20	5
1881		Victoria, Texas	5-6-70	PV	3	3	8-1	12x50	3
1882		Victoria, Texas	4-30-71	PV	5	3	8-6	7x60	3
1882		Victoria, Texas	5-23-69	PV	5	3	--	5x20	9
1882		Victoria, Texas	5-6-70	PV	3	3	8-10	15x50	3
1883		Victoria, Texas	4-30-71	PV	3	3	8-6	8x60	3
1883		Victoria, Texas	5-23-69	PV	5	1	8-15	6x40	5
1884		Cuero, Texas	4-30-71	PV	3	3	8-6	10x60	1
1884		Cuero, Texas	4-30-71	PV	3	3	8-6	8x60	1
1884		Cuero, Texas	4-30-71	PV	3	3	8-6	9x60	3
1885		Victoria, Texas	4-30-71	PV	3	3	8-6	9x40	7
1885		Victoria, Texas	5-6-70	PV	5	3	8-10	8x40	5
1885		Victoria, Texas	5-23-69	PV	5	1	8-15	5x50	3
1885		Victoria, Texas	5-6-70	PV	5	3	8-10	6x40	5
1889		Goliad, Texas	5-6-70	PV	3	3	8-10	12x54	3
2425		Cuero, Texas	4-30-71	PV	1	1	8-6	15x40	3
2425		Cuero, Texas	5-6-70	PV	5	1	8-10	12x60	5

Initial Observation Area - Legumes & Forbs - 1971 - (Cont'd)

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WA- Winter Annual	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Stand	Seedling :Vigor	Bloom :Date	:Measurement	Seed :Prod
<u>Rhynchosia minima</u> L. DC. (cont'd)									
2426		Goliad, Texas	4-30-71	PV	3	3	8-6	8x60	3
2426		Goliad, Texas	5-6-70	PV	1	1	8-6	2x40	5
2427		Goliad, Texas	4-30-71	PV	3	3	8-6	12x60	3
2427		Goliad, Texas	5-6-70	PV	3	1	8-10	8x40	5
2428		Columbus, Texas	4-30-71	PV	1	1	8-6	14x60	1
2428		Columbus, Texas	5-6-70	PV	5	7	8-10	4x40	7
2602		Cuero, Texas	4-30-71	PV	7	5	7-1	4x40	1
2603		Cuero, Texas	4-30-71	PV	5	3	8-6	7x60	3
2604		LaGrange, Texas	4-30-71	PV	5	3	8-6	6x60	3
2605		Hallettsville, Texas	4-30-71	PV	3	3	8-6	7x60	3
2606		Columbus, Texas	4-30-71	PV	5	3	7-20	9x60	3
2607		Refugio, Texas	4-30-71	PV	5	3	8-6	9x60	3
2608		Bay City, Texas	4-30-71	PV	5	3	8-6	8x60	5
2609		Victoria, Texas	4-30-71	PV	5	3	8-1	7x60	5
2610		Goliad, Texas	4-30-71	PV	3	3	8-6	10x60	3

Salvia pitcherii Nutt.
bluesage

1493		Waco, Texas	5-15-67	PB	5	5	9-1	63"x30	7
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Sanguisorba minor Scop.
burnet

1517	BN-9017	NPMC	5-15-67	PB	7	5	4-1	17-9x14	3
1518	PI-287923	NPMC	5-15-67	PB	5	5	4-1	13-10x22	7
1519	PI-297952	NPMC	5-15-67	PB	5	5	4-1	15-8x19	5
1791		Los Lunas	5-15-68	PB	5	5	4-1	23-9x40	5

Schrankia uncinata Willd.
sensitivebrier

838		Sweetwater, Texas	4-30-71	PV	7	5	8-6	3x40	5
839		Baird, Texas	4-30-71	PV	3	3	8-6	4x40	7
840		Sonora, Texas	4-30-71	PV	3	7	8-6	4x40	7
2429		Archer City, Texas	5-6-70	PV	5	1	8-10	8x50	3
2612		Pearsall, Texas	4-30-71	PV	7	5	8-6	5x40	7
2613		Georgia PMC	4-30-71	PV	7	3	7-1	5x40	9
2813		Georgia, PMC	8-6-71	PV	5	5	10-28	2x40	9

Simsia calva (Engelm. & Gray) Gray
bushsunflower

856		Junction, Texas 5	5-27-65	PB	3	3	5-5	30x40	3
2643		Alice, Texas	4-30-71	PB	3	3	8-6	26-20x40	3

Strophostyles helvola (L.) Ell.
trailing wildbean

1879		Victoria, Texas	5-23-69	AV	3	3	8-15	12x120	3
1879		Victoria, Texas	5-6-70	AV	1	1	8-10	12x100	3
1880		Victoria, Texas	5-23-69	AV	3	3	8-15	12x120	3
1880		Victoria, Texas	5-6-70	AV	3	3	8-15	12x40	3

Strophostyles sp. Ell.
fuzzybean

1886			4-30-71	AV	5	3	8-6	10x40	3
1886			5-23-69	AV	5	1	8-15	7x100	3
1886			5-6-70	AV	5	1	8-10	19x100	5

Initial Observation Area - Legumes & Forbs - 1971 - (Cont'd)

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S - Sod	R - Reseeding	5 - Fair	22 - foliage height
NG- No Germination	GD - Germinated & Died	7 - Poor	18 - foliage width
WA- Winter Annual	WK - Winter killed	9 - None	@ foliage height

FMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Seedling :Stand	Bloom :Vigor	Bloom :Date	:Measurement	Seed :Prod
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Tephrosia lindheimers Gray
roundleaf tephrosia

2632		Pearsall, Texas	4-30-71	PV	7	1	8-6	6x40	5
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Tephrosia onobrychoides Nutt.
multibloom tephrosia

1971		Goliad, Texas	4-30-71	PV	3	1	8-6	18-7x40	3
2633		Beeville, Texas	4-30-71	PV	7	1	7-1	10-40	5

Vicia lutea

2354	AM-87	'Dadeville'	2-18-70	AV	7	5	6-30	8x22	7
2355	PI-249880	NPMC	2-18-70	AV	7	5	6-30	4x15	7
	AM-1466								
2356	AM-85	'Pickens'	2-18-70	AV	7	5	6-30	2x12	5

Vicia sp. L.

2196	AM-2196	Winnsboro, N. C.	2-18-70	AV	5	3	6-15	5x10	5
2237	AM-2530	Auburn, Ala.	2-18-70	AV	7	5	6-8	6x22	5

Viguiera stenoloba Blake
skeletonleaf goldeneye

868		Rankin, Texas	5-27-65	PB	5	5	6-1	56-46x30	5
869		Ozona, Texas	5-27-65	PB	5	5	6-1	40-20x35	3
870		Del Rio, Texas	5-27-65	PB	3	3	7-1	24-30x39	1
1052		Sanderson, Texas	4-26-66	PB	5	7	7-1	35-35x35	5
1053		Sanderson, Texas	4-22-66	PB	7	5	7-1	40-20x26	5
2328		Composite	4-23-71	PB	5	5	10-1	12-12x12	7

Zexmenia hispida H.B.K.
orange zexmenia

2640		Benavides, Texas	4-30-71	PB	7	3	8-6	24-18x40	3
2641		Alice, Texas	4-30-71	PB	7	3	8-6	20-14x34	3
2642		Beeville, Texas	4-30-71	PB	7	3	8-6	20-14x40	5

Initial Observational Area - Woody Plants - 1971

Code:		1 - Excellent	Example: 34 - 22 x 18
P - Perennial	V - Vine	3 - Good	34 - head height
D - Deciduous	VL - Vegetative & Lived	5 - Fair	22 - foliage height
E - Evergreen	VD - Vegetative & Died	7 - Poor	16 - foliage width
NG - No Germination	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Seed :Vigor	Seed :Prod	Measurement	Stand :Ratings
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Alnus glutinosa Gaertn.

2802	Mich-823	Mich gan PMC	4-30-71	VD	3	9	40 cm	
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Alnus serrulata (Ait.) Willd.
hazel alder

2385		Chawtaw, Okla.	3-20-70	V Died				
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Amorpha fruticosa L.
indigo-bush amorpha

2297		Gainesville, Texas	3-23-71	D	3	9	4" to 16"	1
2298		Stanton, Neb.	3-23-71	D	3	9	4" to 16"	1
2299		Talihina, Okla.	3-23-71	D	3	9	4" to 16"	1
2348		Jacksboro, Texas	3-23-71	D	3	9	4" to 16"	1
2393		Hugo, Okla.	3-23-71	D	3	9	4" to 16"	1
2467	PMK-1411	Kansas PMC	3-23-71	D	3	9	4" to 16"	
2468		Bowie, Texas	3-23-71	D	3	9	4" to 16"	
2469		Knox City, Texas	3-23-71	D	3	9	4" to 16"	
2470		Muenster, Texas	3-23-71	D	3	9	4" to 16"	
2471		Muenster, Texas	3-23-71	D	7	9	cankered	

Ampelopsis brevipedunculata L.
amur ampelopsis

2362	NC-67-14	Miss. PMC	2-20-70	PV	3	5	20" x 40"	1
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Anisacanthus wrightii (Torr.) Gray
Wright anisacanth

1230		Waco, Texas	1-29-68	D	3	3	54" x 60"	1
1230		Waco, Texas	4-7-70	D	3	3	30" x 20"	1

Atriplex canescens (Pursh.) Nutt.
fourwing saltbush

626		Rankin, Texas	2-2-70	E	3	7	4 x 60	1
1041		Knox City, Texas	2-20-70	E	3	7	52 x 90	5
1041		Knox City, Texas	12-6-66	E	3	7	58 x 96	5
1043		Pecos, Texas	12-6-66	E	3	7	64 x 84	
2084	EN-11911	New Mexico	2-20-70	E	3	7	70 x 100	7
2085	PI-330655	NPMC	2-20-70	E	5	9	36 x 90	
2086	PI-330657	NPMC	2-20-70	E	3	1	40 x 90	5

Atriplex halimus L.

2087	PI-330659	NPMC	2-20-70	E	WK			
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Atriplex leniformis (Torr.) Wats.
big saltbush

2088	PI-330661	NPMC	2-20-70	WK				
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Atriplex leucoclada Boiss

2089	PI-330662	NPMC	2-20-70	E	7	3	10 x 20	
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Atriplex leucoclada var. turcomanica (Moq.) Zoh.

2097	PI-339807	NPMC	2-20-70	WK				
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Initial Observational Area - Woody Plants - 1971 - (Cont'd)

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P - Perennial	V - Vine	3 - Good	34 - head height
D - Deciduous	VL - Vegetative & Lived	5 - Fair	22 - foliage height
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NG - No Germination	WK - Winter killed	9 - None	@ foliage height

PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Vigor	Seed :Prod	Measurement	Stand :Ratings
<u>Atriplex muelleri</u> Benth								
2090	PI-330663	NPMC	2-20-70	WK				
<u>Atriplex nummularia</u> Lindl. cattle saltbush								
2091	PI-20664	NPMC	2-20-70	E	7	7	12 x 42	5
<u>Atriplex rosa</u> L. tumbling orch								
2094	PI-330667	NPMC	2-20-70	A	1	1	16 x 48	1
<u>Atriplex sp.</u> L. saltbush								
2095	PI-330670	NPMC	2-20-70	E	5	3	42 x 80	7
2096	PI-330671	NPMC	2-20-70	E	3	3	56 x 90	7
<u>Callicarpa americana</u> L. American beautyberry								
2366	MS-2933	Arkansas	2-2-70	D	3	3	20 x 20	1
<u>Callicarpa japonica</u> Thunb.								
2613	T-2577	NPMC	2-16-71	PB	3	3	14x15	5
<u>Castanopsis sclerophylla</u> Hook evergreen chiniquepin								
2518	PI-95630 AM-2133	Georgia PMC	2-16-71	E	7	9	12" ht.	
<u>Ceanothus americanus</u> L. jerseytea								
2491		Kansas	4-23-71	NG				
<u>Ceanothus fendleri</u> Gray								
2494	A-17782 AM-2692	Prescott, Arizona	4-23-71	D	5	5	6" ht.	
<u>Ceanothus thyrsiflorus</u> Esch.								
2492	PL-56	Pleasanton, Calif.	4-23-71	NG				
<u>Ceanothus thyrsiflorus</u> var. <u>Repens</u>								
2493	PL-569	Pleasanton, Calif.	4-23-71	NG				
<u>Cephalanthus occidentalis</u> L. common buttonbush								
2338	AM-1270	Georgia PMC	2-2-70	D	5	9	32x40	1
2392		Washington, Okla.	3-15-71	D	3	7	20x20	1
2497		Knox City, Texas	3-15-71	D	1		50x20	1

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PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Vigor	Seed :Prod	Measurement	Stand :Ratings
<u>Cercocarpus montanus Raf.</u> true mountain mahogany								
2399		Junction, Texas	5-6-70	GD				
2400		Junction, Texas	5-6-70	NG				
<u>Citharexylum sp. B. Juss.</u> fiddlewood								
2742		San Benito, Texas	4-23-71	NG				
<u>Cotoneaster racemiflora Koch</u> redbead cotoneaster								
2363	PI-15101	NPMC	2-19-70	D	3	5	30"x50"	1
<u>Crataegus sp. L.</u> hawthorn								
1566	MS-2202	Miss. PMC	12-12-68	D	7	9	34"x30"	5
<u>Cupressus arizonica (Greene) Linden.</u> Arizona cypress								
1380		Kansas	2-70	E	3	9	56"x13"	1
<u>Elaeagnus angustifolius L.</u> Russian olive								
627		Wheeler, Texas	--	D	3	3	10'x10'	3
628		Vernon, Texas	1-29-68	D	1	1	12'x15' ft.	1
<u>Elaeagnus umbellata Thunbg.</u> autumn olive								
1298	MS-363	Miss. PMC	2-12-68	D	7	9	45 x 50	1
1299	MS-430	Miss. PMC	2-12-68	D	5	9	5'x8'	1
1300	MS-432	Miss. PMC	2-12-68	D	7	9	4'x4'	7
<u>Ephedra antisiphilitica Berl.</u> erect ephedra								
1634		Sonora, Texas	2-2-70	E	5	9	4" x 6"	1
1987		Snyder, Okla.	2-18-70	E	3	9	20"x36"	1
<u>Euonymus bungeanus Maxim</u> winterberry								
2517	PMK-1070 AM-2598	'Woodward'	5-4-71	D	5	9	3" ht.	7
2518	PMO-38	'Woodward'	5-4-71	D	3	9	30"x20"	3
<u>Eurotia lanata (Pursh.) Moq.</u> common winterfat								
2316		Marfa, Texas	5-6-70	E	1	5	24x44	7
2317		Marfa, Texas	5-6-70	E	3	9	30x40	7
2318		Marfa, Texas	5-6-70	E	5	5	40x50	7

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PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	Vigor	Seed :Prod	Measurement	Stand :Ratings
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Eysenhardtia polystachya (Ort.) Sarg.
kidneywood

629		Crystal City, Texas	4-1-66	D	3	3	72x60	1
629		Crystal City, Texas	5-4-71	D	3	7	30x20	7

Eysenhardtia texana Scheele.
Texas kidneywood

1045		Uvalde, Texas	12-6-66	D	3	3	44x54	1
1045		Uvalde, Texas	5-4-71	D	3	5	30x20	7
1046		Uvalde, Texas	12-6-66	D	3	3	55x70	1

Gleditsia sp. L.
honey locust

2340 AM-2401		Georgia PMC	2-2-70	D	3	9	8'x5'	1
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Juglans nigra L.
eastern black walnut

2364 MS-2937		Miss. PMC	2-19-70	D	3	9	40"x60"	3
2365 MS-2938		Miss. PMC	2-19-70	D	3		50"x50"	3

Juniperus ashei Buchh.
ashe juniper

2800 EN-20388		NPMC	4-30-71	E	3	9	20x20	3
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Juniperus silicicola (Small) Bailey.
southern red cedar

2801 EN-20389		NPMC	4-30-71	E	3	9	20x20	3
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Leucaena retusa Benth.
littleleaf leadtree

632		Junction, Texas	3-24-69	D	3	5	56"x60"	1
632		Junction, Texas	4-1-66	D	3	1	13'x10'	1

Lithocarpus henryi
tanoak

2677 PI-120651		Georgia PMC	2-16-71	D	7	9	10"x12"	7
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Lonicera maackii L.
amur honey suckle

1571 MS-2461		Miss. PMC	2-12-68	D	3	3	72"x72"	1
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Lycium halimifolium L.
matrimonyvine

2996 PMK-11445		Kansas PMC	2-4-71	D	1	3	30"x30"	1
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Malus hupehensis
crabapple

1272 MS-150		Miss. PMC	2-12-68	Died	Root Rot			
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Malus sp.

2678 AM-2344 Georgia PMC 2-16-71 Died

Malus spectabilis
flowering crabapple

2341 AM-259 Georgia PMC 2-2-70 D 7 9 40"x40" 1

Pavonia lasiopetala Scheele
Wrights pavonia

1629 Junction, Texas 4-7-70 D 3 3 15x30 1
1630 Junction, Texas 2-2-70 D 3 3 15x30 1
1631 Junction, Texas 2-2-70 D 3 3 15x30 1

Photinia villosa sinica DC
thinleaf orange photinia

1573 MS-2426 Miss. PMC 2-12-68 D 7 9 40"x30" 7

Pistacia chinensis Bunge
Chinese pistache

1297 PI-21970 Miss. PMC 2-12-68 D 1 9 11'x8' 3
MS-2182
1297 PI-21970 Miss. PMC 4-7-70 D 5 9 5'x6" 9
MS-2182

Pistacia terebinthus Linn.
terebinth pistache

1580 MS-2494 Miss. PMC 2-12-68 D 5 9 8'x8' 5

Pistacia vera 'tarbonella' Linn.
tarbonella pistache

1583 MS-2492 Miss. PMC 2-12-68 D Died-root rot

Pithecellobium flexicaule (Benth.) Coult.
ebony apes-earring

2195 Rio Grande, Tex. 4-7-70 Winter killed

Pittosporum tobira Ait.
pittosporum

2679 NC-67-23 Georgia PMC 2-16-71 E 7 9 2"x2" 9

Prunus reverchonii Sarg.
reverchon hog plum

636 Aspermont, Texas 12-5-66 D 3 3 9'x9' 1

Prunus sp. L.
plum

645 Jayton, Texas 3-19-66 D 1 3 8' 1
646 Bonham, Texas 3-19-66 D 1 3 7' 1
647 Decatur, Texas 3-19-66 D 1 3 7' 1
648 Decatur, Texas 3-19-66 D 1 3 8'x10' 1
1388 San Angelo, Texas 2-2-70 D 1 5 7' 1

Initial Observational Area - Woody Plants - 1971 - (Cont'd)

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PMT No.	PI or Other No.	Origin	Date :Planted	Growth :Type	:Vigor	Seed :Prod	Measurement	Stand :Ratings
<u>Prunus texana</u> D. Dietr. small flower peachbrush								
638		Junction, Texas	3-19-66	E	1	3	45x60	1
639		Junction, Texas	3-19-66	E	1	5	50x72	1
640		Junction, Texas	3-19-66	E	1	5	40x60	1
641		Junction, Texas	3-19-66	E	1	5	50x80	1
879		Falfurras, Texas	1-29-68	E	1	7	40x60	1
<u>Pterocarya stenoptera</u> Chinese wingnut								
2342	AM-2370	Georgia PMC	2-2-70	D	1	9	6'x6'	1
<u>Quercus acutissima</u> sawtooth oak								
2462	PI-142294	Georgia PMC	4-7-70	D	3	9	12"	5
<u>Quercus pumila</u> runner oak								
2343	AM-310	Georgia PMC	2-2-70	D	7	9	5"	7
2344	AM-310-C	Georgia PMC	2-2-70	D	7	9	10"x9"	7
2345	AM-310-F	Georgia PMC	2-2-70	D	7	9	5"	5
2346	AM-1552	Georgia PMC	2-2-70	D	7	9	5"	5
2378	AM-310-D	Georgia PMC	2-2-70	D	7	9	5"	7
<u>Raphiolepis indica</u> Lindl. Bailey's indian hawthorn								
2680	NC-67-25 AM-2143	Georgia PMC	2-16-71	Died				
<u>Rhus glabra</u> L. smooth sumac								
1565	Miss. PMC		2-2-70	D	3	9	68"x30"	7
1586	MS-2216	Miss. PMC	2-12-68	D	3	9	50"x60"	5
2611	K-1431	Kansas PMC	4-23-71	D	3	9	5"	5
<u>Rhus trilobata</u> Nutt. skunkbush								
649		Wellington, Texas	12-5-66	D	3	5	34"x45"	5
650		Graham, Texas	2-2-70	D	3	5	34"x60"	5
651		Muleshoe, Texas	3-20-66	D	5	5	68"x84"	1
652		Sonora, Texas	12-5-66	D	5	9	44"x84"	1
657		Junction, Texas	12-5-66	D	3	9	54"x64"	7
1050		Muleshoe, Texas	2-2-70	D	5	9	33"x60"	1
<u>Robinia fertilis</u> L. bristly locust								
2501		'Arnot'	5-4-71	D	3	9	36"x40"	3
<u>Rosa eglanteria</u> L. eglantine rose								
1587	MS-2459	Miss. PMC	2-12-68	D	3	3	8"x10'	3

Initial Observational Area - Woody Plants - 1971 - (Cont'd)

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FMT	PI or		Date	Growth	Seed		Stand
No.	Other No.	Origin	:Planted	:Type	:Vigor	:Prod	:Ratings

Rosa wichuraina Crepin.
wichura rose

2386	BN-9235	NPMC	3-9-70	D	1	3	12"x15'	1
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Salix interior Rowlee
sandbar willow

2372		Miss. PMC	2-70	Whips	1	9	40x40	7
2384		Knox City, Texas	2-19-70	Whips	3	9	40"x15'	3
2437		Clinton, Okla.	3-71	Whips	3	9	60"x10'	3
2792		Knox City, Texas	3-5-70	Whips	3	9	6"x18'	3

Salix lucida Muhl.
shining willow

2391		Washington, Okla.	3-70	Whips	7	9	30x50	7
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Salix sp. L.
willow

2797		Colorado	6-71	Whips	7	9	died root rot	
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Symphocarpus orbiculatus Moench.
buck brush

2631	K-1430	Kansas PMC	4-16-71	NG				
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APPENDIX - B

INITIAL OBSERVATIONAL AREA - 1971

SUMMARY

GRASSES

SCIENTIFIC NAME	COMMON NAME	NUMBER OF ACCESSIONS
<i>Agropyron elongatum</i> (Host) Beauv.	tall wheatgrass	3
<i>Agropyron junceum</i> (L.) Beauv.		4
<i>Agropyron scabrifolium</i>	wheatgrass	1
<i>Agropyron tsukushiense</i> (Honda) Ohwi.		1
<i>Andropogon annulatus</i> Forsk	Diaz bluestem	1
<i>Andropogon bartinoidis</i> Lag.	cane bluestem	1
<i>Andropogon caucasicus</i> Trin.	Caucasian bluestem	1
<i>Andropogon gerardi</i> Vitman	big bluestem	149
<i>Andropogon hallii</i> Hack.	sand bluestem	18
<i>Andropogon intermedius</i> R. Br.	Australian bluestem	1
<i>Andropogon scoparius</i> Michx.	little bluestem	96
<i>Andropogon scoparius</i> var. <i>littoralis</i> Nash.	seacoast bluestem	10
<i>Andropogon</i> L. sp.	bluestem	1
<i>Andropogon stolonifer</i> (Nash) Hitchc.		2
<i>Arundinaria gigantea</i> (Watt.) Muhl.	giant cane	1
<i>Arundinaria</i> Michx. sp.	cane	2
<i>Arundinaria tecta</i> (Walt.) Muhl.	switchcane	3
<i>Arundo donax</i> L.	giant reedgrass	5
<i>Bothriochloa ischaemum</i> var. <i>ischaemum</i> (L.) Keng.	bluestem	1
<i>Bouteloua curtipendula</i> (Michx.) Torr.	sidecoats grama	59
<i>Bouteloua gracilis</i> (H.B.K.) Lag. ex Steud	bluegrama	26
<i>Brachiaria</i> (Trin.) Griseb. sp.	signalgrass	3
<i>Bromus willdenowii</i> Kunth.		1
<i>Calamovilfa gigantea</i> (Nutt.) Scribn & Merr.	big sandreed grass	6
<i>Cenchrus myosuroides</i> H.B.K.	big sandbur	1
<i>Chloris latiquamea</i> Nash.	Nash windmillgrass	1
<i>Chrysopogon fulvus</i>	golden raphisgrass	2
<i>Chrysopogon gryllus</i>		1
<i>Coix lachryma</i> Linn.	Jobs tears	1
<i>Cymbopogon distans</i> (Nees.) Watts.		1
<i>Cynodon dactylon</i> (L.) Pers.	bermuda grass	8
<i>Cynodon plectostachys</i>		2
<i>Desmostachys bipinnata</i>		2
<i>Dichanthium annulatum</i> Forsh. Stapf.	yellow bluestem	1
<i>Dichanthium</i> sp. Willemet		4
<i>Digitaria eriantha</i>	wooly fingergrass	1
<i>Distichlis stricta</i> (Torr.) Rydb.	inland saltgrass	1
<i>Elymus arenarius</i> L.	rye grass	2
<i>Elymus canadensis</i> L.	Canada wildrye	1
<i>Elymus giganteus</i> Vahl.	wildrye	1
<i>Elymus sabulosus</i> Bieb.		1
<i>Elymus triticoides</i> Buckl.		1
<i>Elymurus hirsutus</i> Munro.		2
<i>Eragrostis atherstonei</i>		1
<i>Eragrostis curvula</i> Schrad. Nees.	weeping lovegrass	8
<i>Eragrostis palmeri</i> S. Wats.	Rio Grande lovegrass	7
<i>Eragrostis superba</i>	Wilman lovegrass	2
<i>Eragrostis trichoides</i> (Nutt.) Wood	sand lovegrass	1
<i>Eragrostis pilifera</i> Scheele.	sandhill lovegrass	1
<i>Eremochloa ophiuroides</i> (Munro.) Hack.	centipede grass	1
<i>Euchlaena perennis</i> Hitchc.	teosente	1
<i>Festuca arundinacea</i> Schreb.	tall fescue	1
<i>Festuca elatior</i> L.	meadow fescue	1
<i>Hemarthria altissima</i>		2
<i>Heteropogon contortus</i> L. Beauv. ex & Roem & Schult.	tanglehead	1
<i>Hordeum bulbosum</i> L.	bulbous barley	2
<i>Leersia oryzoides</i> L. Swartz	rice cutgrass	1
<i>Leptochloa dubia</i> (H.B.K.) Nees.	green sprangletop	7
<i>Liriope graminifolia</i> Baker.	lily turf	1
<i>Panicum amarulum</i> Hitchc. & Chase	shoredune panicum	5
<i>Panicum amarum</i> Ell.	bitter panicum	1
<i>Panicum antidotale</i> Retz.	blue panicum	13
<i>Panicum bulbosum</i> H.B.K.	bulb panicum	1
<i>Panicum havardii</i> Vasey.	havard panicum	1
<i>Panicum hemitomon</i> Schult.	maiden cane	2
<i>Panicum plenum</i> Hitchc. & Chase	false switchgrass	7
<i>Panicum</i> L. sp.	panicum	1
<i>Panicum Staphianum</i> Fourc.		9
<i>Panicum virgatum</i> L.	switchgrass	8
<i>Paspalum chromyrorhizon</i>		2
<i>Paspalum floridanum</i> Michx.	Florida paspalum	1
<i>Paspalum distichum</i> L.	knotgrass	1
<i>Paspalum monostachyum</i> Vasey	gulfdune paspalum	2
<i>Paspalum notatum</i> Flugge	bahia grass	4
<i>Paspalum plicatulum</i> Michx.	brownseed paspalum	1
<i>Pennesetum</i> L. sp.		1
<i>Phalaris aquatica</i> L.	hardinggrass	1
<i>Phalaris arundinacea</i> L.	reed canarygrass	3
<i>Phalaris arundinacea</i> x. <i>tuberosa</i>		1
<i>Phalaris stenoptera</i> Hack.		1
<i>Phragmites communis</i> Trin.	common reedgrass	6
<i>Phyllostachys bambusoides</i> Sieb.	bamboo	1
<i>Phyllostachys bissetti</i>	bamboo	1
<i>Phyllostachys nigra</i> Munro.	bamboo	1
<i>Phyllostachys</i> sp.	bamboo	6
<i>Poa arachnifera</i> Torr.	Texas bluegrass	10
<i>Setaria flabellata</i> Stapf.	bristlegrass	1
<i>Setaria magna</i> Griseb.	giant bristlegrass	1

Initial Observational Area - Summary - (Cont'd)

SCIENTIFIC NAME	COMMON NAME	NUMBER OF ACCESSIONS
<i>Sorghastrum nutans</i> (L.) Nash	indiangrass	29
<i>Spartina pectinata</i> Link.	prairie cordgrass	13
<i>Sporobolus airoides</i> (Torr.) Torr.	alkali sacaton	36
<i>Sporobolus contractus</i> Hitchc.	spike dropseed	1
<i>Sporobolus fimbriatus</i>		1
<i>Sporobolus flexuosus</i> (Thurb.) Rydb.	mesa dropseed	1
<i>Sporobolus gigantea</i> Nash.	giant dropseed	1
<i>Sporobolus usitatus</i> Scribn.		1
<i>Sporobolus virginicus</i> (L.) Kunth.		1
<i>Stipa barbata</i> Desf.		1
<i>Stipa capillata</i> L.		2
<i>Stipa columbiana</i> Macoun.	Columbia needlegrass	1
<i>Stipa kirghisorum</i> p. Smirn.		1
<i>Stipa lagascae</i> Roem & Schult.		1
<i>Stipa tortillis</i> Desf.		1
<i>Tetradne dregei</i> Nees.		1
<i>Tetrapogon mossambicensis</i> Chippin. ex. B. S. (K. Schum)		1
<i>Tricholaena rosea</i> Nees.	natal grass	2
<i>Tridens stricta</i> (Nutt.) Nash	thick spike tridens	1
<i>Tripsacum dactyloides</i> (L.) L.	eastern gamagrass	45
<i>Uniola paniculata</i> L.	sea oats	1
<i>Urochloa mosambicensis</i> (Hack.) Dandy		1

LEGUMES AND FORBS

SCIENTIFIC NAME	COMMON NAME	NUMBER OF ACCESSIONS
<i>Acacia angustissima</i>		2
<i>Acacia greggii</i> Gray		1
<i>Amblyolepis sertigera</i> DC.	Huisache daisy	1
<i>Belamcandia chinensis</i> DC.	blackberry lily	1
<i>Cassia alata</i> (Penn) Cory & Parks	senna	1
<i>Centauria americana</i> Nutt.	American basket flower	1
<i>Centrosema virginianum</i> (L.) Benth.	coastal butterfly pea	1
<i>Chamaecrista fasciculata</i> Michx.	showy partridgepea	2
<i>Chamaecrista</i> sp. Linn.	partridgepea	1
<i>Clitoria rubiginosa</i> Guss. ex Pers.	pigeonwings	1
<i>Clitoria ternata</i> L.	Asian pigeonwings	3
<i>Coronilla varia</i> Linn.	crownvetch	2
<i>Dalea oaxacana</i>	guadalupe dalea	2
<i>Desmanthus illinoensis</i> Michx.	Illinois bundleflower	7
<i>Desmanthus obtusus</i> Watts.	blunt pod bundleflower	6
<i>Desmanthus virgatus</i> (depressus) (Willd.) B. L. Turner	prostrate bundleflower	4
<i>Desmanthus virgatus</i> (L.) Willd.	prostrate bundleflower	2
<i>Desmodium adscendens</i> (Sw.) DC.		1
<i>Desmodium angustifolium</i> (HBK.) DC.	tickclover	1
<i>Desmodium axillare</i> (Sw.) DC.	tickclover	2
<i>Desmodium cinerascens</i> Gray	tickclover	1
<i>Desmodium cinereum</i> (HBK.) DC.	tickclover	2
<i>Desmodium intortum</i> (Mill.) Urb.	silver leaf desmodium	2
<i>Desmodium paniculatum</i> (L.) DC.	Clanton tickclover	1
<i>Desmodium</i> sp. Desv.		4
<i>Erythrina herbacea</i> L.		1
<i>Galactia canescens</i> Benth.	hoary milkpea	1
<i>Galactia grayi</i> Vail	gray milkpea	1
<i>Galactia</i> sp. P. Br.	milkpea	1
<i>Galactia texana</i> (Scheele) Gray	Texas milkpea	1
<i>Gilia rubra</i> L. (wherry)	true Texas plume	1
<i>Gomphrena globosa</i> L.	globe amaranth	1
<i>Helianthus argophyllus</i> T. & G.	silverleaf sunflower	1
<i>Helianthus mollis</i> Lam.	ashy sunflower	1
<i>Helianthus petiolaris</i> Nutt.	plains sunflower	1
<i>Helianthemum variable</i> Spach.	variable sunflower	1
<i>Indigofera leptosepala</i> (Nutt.) Turner	western indigo	6
<i>Indigofera miniata</i> (Nutt.) Turner	coast indigo	2
<i>Indigofera minata</i> var <i>leptosepala</i> (Nutt.) Turner		3
<i>Indigofera pseudotinctoria</i>	false indigo	3
<i>Indigofera suffruticosa</i> Mill.	anil indigo	1
<i>Ipomoea pes-caprae</i> L.	sweet morningglory	1
<i>Justica americana</i> (L.) Vahl.	justica	1
<i>Lespedeza bicolor</i> Turtz.	bicolor lespedeza	1
<i>Lespedeza capitata</i> Michx.	roundhead lespedeza	3
<i>Lespedeza cuneata</i> (Dumont) G. Don	lespedeza	4
<i>Lespedeza x. divaricata</i> (Nakai) T. B. Lee		1
<i>Lespedeza japonica</i> Bailey		1
<i>Lespedeza pilosa</i>		1
<i>Lespedeza procumbens</i> Michx.	trailing lespedeza	2
<i>Lespedeza serpens</i>		1
<i>Lespedeza tomentosa</i> (Thunb.) Sieb ex Maxim	wooly lespedeza	4
<i>Lespedeza violacea</i> (L.) Pers.	violet lespedeza	1
<i>Lespedeza virgata</i>	spreading lespedeza	1
<i>Lespedeza virginica</i> (L.) Britt.		2
<i>Liatris punctata</i> Hook	dotted gayfeather	9
<i>Linum lewisii</i> Pursh.	lewis flax	1
<i>Lotus creticus</i> L.		3
<i>Lotus hispidus</i>		1
<i>Lotus ornithopodioides</i>		2
<i>Lotus palustris</i>		1
<i>Medicago sativa</i> L.		1
<i>Menodora longiflora</i> Gray	showy menodora	1
<i>Menodora scabra</i> Gray	rough menodora	1
<i>Neptunia lutea</i> (Leavenw.) Benth	yellow neptunia	8
<i>Neptunia</i> sp. (Leavenw.)	neptunia	6
<i>Oenothera missouriensis</i> Sims.	Ozark sundrop	1
<i>Oenothera serrulata</i> Nutt.	half sundrop	5
<i>Onobrychis viciifolia</i>	common sanfoin	1

Initial Observational Area - Summary - (Cont'd)

SCIENTIFIC NAME	COMMON NAME	NUMBER OF ACCESSIONS
<i>Petalostemon candidum</i> (Willd.) Michx.		1
<i>Petalostemon microphyllum</i> Michx.	longbracted prairieclover	1
<i>Petalostemon multiflorus</i> Nutt.	prairie clover	6
<i>Petalostemon multiflorus</i> Nutt. (cont'd)	prairie clover	3
<i>Petalostemon purpureum</i>	purple prairie clover	1
<i>Petalostemon</i> sp. Michx.		5
<i>Phaseolus aureus</i> Roxbg.	ricebean	1
<i>Phaseolus metcalfei</i> Woot. & Standl.		1
<i>Phlox drummondii</i> Hook		1
<i>Psoralea tenuiflora</i> Pursh.	wild alfalfa	1
<i>Pueraria thumbergiana</i> Benth	kudza	1
<i>Rhynchosia minima</i> L. DC.	least snoutbean	19
<i>Salvia pitcherii</i> Nutt.	bluesage	1
<i>Sanguisorba minor</i> Scop.	burnet	4
<i>Schrankia uncinata</i> Willd.	sensitivebrier	7
<i>Simsia calva</i> (Engelm. Gray) Gray	bushsunflower	2
<i>Strophostyles helvola</i> (L.) Ell.	trailing wildbean	2
<i>Strophostyles</i> sp. Ell.	fuzzybean	1
<i>Tephrosia lindheimers</i> Gray	roundleaf tephrosia	1
<i>Tephrosia onobrychoides</i> Nutt.	multibloom tephrosia	2
<i>Vicia lutea</i>		3
<i>Vicia</i> sp. L.		2
<i>Viguiera stenoloba</i> Blake	skeletonleaf goldeneye	6
<i>Zexmenia hispida</i> H.B.K.	orange zexmenia	3

WOODY PLANTS

SCIENTIFIC NAME	COMMON NAME	NUMBER OF ACCESSIONS
<i>Alnus glutinosa</i> Gaertn.		1
<i>Alnus serrulata</i> (Ait.) Willd.	hazel alder	1
<i>Amorpha fruticosa</i> L.	indigo-bush amorpha	10
<i>Ampelopsis brevipedunculata</i> L.	amur ampelopsis	1
<i>Anisacanthus wrightii</i> (Torr.) Gray	wright anisacanth	1
<i>Atriplex canescens</i> (Pursh.) Nutt.	fourwing saltbush	6
<i>Atriplex halimus</i> L.		1
<i>Atriplex leniformis</i> (Torr.) Wats.	big saltbush	1
<i>Atriplex leucoclada</i> Boiss		1
<i>Atriplex leucoclada</i> var. <i>turcomanica</i> (Moq.) Zoh.		1
<i>Atriplex muelleri</i> Benth		1
<i>Atriplex nummularia</i> Lindl.	cattle saltbush	1
<i>Atriplex rosea</i> L.	tumbling orch	1
<i>Atriplex</i> sp. L.	saltbush	2
<i>Callicarpa americana</i> L.	American beautyberry	1
<i>Callicarpa japonica</i> Thunb.		1
<i>Castanopsis sclerophylla</i> Hook	evergreen chiniquepin	1
<i>Ceanothus americanus</i> L.	jerseytea	1
<i>Ceanothus fendleri</i> Gray		1
<i>Ceanothus thyrsiflorus</i> Esch.		1
<i>Ceanothus thyrsiflorus</i> var. <i>Repens</i>		1
<i>Cephalanthus occidentalis</i> L.	common buttonbush	3
<i>Cercocarpus montanus</i> Raf.	true mountain mahogany	2
<i>Citharexylum</i> sp. B. Juss.	fiddlewood	1
<i>Cotoneaster racemiflora</i> Koch	redbead cotoneaster	1
<i>Crataegus</i> sp. L.	hawthorn	1
<i>Cupressus arizonica</i> (Greene) Linden.	Arizona cypress	1
<i>Elaeagnus angustifolius</i> L.	Russian olive	3
<i>Elaeagnus umbellata</i> Thunbg.	autumn olive	2
<i>Ephedra antisiphilitica</i> Berl.	erect ephedra	2
<i>Euonymus bungeanus</i> Maxim	winterberry	2
<i>Eurotia lanata</i> (Pursh.) Moq.	common winterfat	3
<i>Eysenhardtia polystachya</i> (Crt.) Sarg.	kidneywood	1
<i>Eysenhardtia texana</i> Scheele.	Texas kidneywood	2
<i>Gleditsia</i> sp. L.	honey locust	1
<i>Juglans nigra</i> L.	eastern black walnut	2
<i>Juniperus ashei</i> Buchh.	ashe juniper	1
<i>Juniperus silicicola</i> (Small) Bailey.	southern red cedar	1
<i>Leucaena retusa</i> Benth.	littleleaf leadtrees	1
<i>Lithocarpus henryi</i>	tan oak	1
<i>Lonicera maackii</i> L.	amur honey suckle	1
<i>Lycium halimifolium</i> L.	matrimonyvine	1
<i>Malus hupehensis</i>	crabapple	1
<i>Malus</i> sp.		1
<i>Malus spectabilis</i>	flowering crabapple	1
<i>Pavonia lasiopetala</i> Scheele	wrights pavonia	3
<i>Photinia villosa sinica</i> DC	thinleaf orange photinia	1
<i>Pistacia chinensis</i> Bunge	Chinese pistache	1
<i>Pistacia terebinthus</i> Linn.	terebinth pistache	1
<i>Pistacia vera</i> 'tarbonella' Linn.	tarbonella pistache	1
<i>Pithecellobium flexicaule</i> (Benth.) Coult.	ebony apes-earring	1
<i>Pittosporum tobira</i> Ait.	pittosporum	1
<i>Prunus reverchonii</i> Sarg.	reverchon hog plum	1
<i>Prunus</i> sp. L.	plum	5
<i>Prunus texana</i> D. Dietr.	small flower peachbrush	5
<i>Pterocarya stenoptera</i>	Chinese wingnut	1
<i>Quercus acutissima</i>	sawtooth oak	1
<i>Quercus pumila</i>	runner oak	5
<i>Raphiolepis indica</i> Lindl.	Bailey's indian hawthorn	1
<i>Rhus glabra</i> L.	smooth sumac	3
<i>Rhus trilobata</i> Nutt.	skunkbush	6
<i>Robinia fertilis</i> L.	bristly locust	1
<i>Rosa eglanteria</i> L.	eglantine rose	1
<i>Rosa wichuriana</i> Crepin.	wichura rose	1
<i>Salix interior</i> Rowlee	sandbar willow	4
<i>Salix lucida</i> Muhl.	shining willow	1
<i>Salix</i> sp. L.	willow	1
<i>Symphocarpus orbiculatus</i> Moench.	buck brush	1

APPENDIX C

Problem Area Reference

- I Playa lakes
- II Field waterways
- III Redbed clay sites
- IV Creosote - Tarbush rangeland
- V Perennial warm season pasture
- VI Warm season pasture - moderate saline
- VII Range - Clay flat & saline
- VIII Rough stony sites
- IX Sandy and gravelly sites
- X High Plains, range
- XI Range, deep sand
- XII Range forb establishment
- XIII Slickspot soils
- XIV Cool season pasture
- XV Range grass improvement
- XVI Beautification
- XVII Wildlife, food & habitat improvement
- XVIII Shoreline stabilization
- XIX Critical area stabilization

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